

CITY OF CAMBRIDGE

STORMWATER POLLUTION PREVENTION PLAN WATER DEPARTMENT FACILITY

June 2020

PREPARED BY:

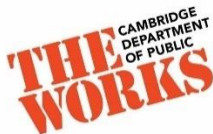


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Figure 1 Site Layout for the Water Department Maintenance Garage

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Appendix C: Employee Training Records
Appendix D: Inspection Form Template and Site Plan
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ABBREVIATIONS

BMP	Best Management Practice
CFR	Code of Federal Regulations
City	City of Cambridge
DPW	Department of Public Works
EPA	Environmental Protection Agency
IDDE	Illicit Discharge Detection and Elimination
MassDEP	Massachusetts Department of Environmental Protection
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer Systems
NPDES	National Pollutant Discharge Elimination System
SPCC	Spill Prevention, Control, and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
VSQG	Very Small Quantity Generator

GLOSSARY

Impaired waters	Water bodies that do not meet water quality standards for one or more designated use(s) such as recreation or aquatic habitat.
Outfall	A point source as defined by 40 CFR § 122.2 as the point where the municipal separate storm sewer discharges to waters of the United States

CERTIFICATION

The City of Cambridge understands the necessity for stormwater controls and hereby agrees to implement this Stormwater Pollution Prevention Plan (SWPPP) as described herein and, in accordance with Title 40 CFR part 23 of the Clean Water Act, to commit the necessary resources required to expeditiously control and remove any harmful quantity of discharge.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name: Katherine F. Watkins

Title: City Engineer

Signature: 

Date: June 30, 2020

RECORD OF REVISIONS

The City of Cambridge shall review this SWPPP regularly to determine if any update or revision is required. Changes that may trigger revision include:

- An increase in the quantity of any potential pollutant stored at the Facility;
- The addition of any new potential pollutant (not already addressed in this SWPPP) to the list of materials stored or used at the Facility;
- Physical changes to the Facility that expose any potential pollutant (not presently exposed) to stormwater;
- Presence of a new authorized non-stormwater discharge at the Facility; or
- Addition of an activity that introduces a new potential pollutant.

Changes in activity may include an expansion of operations, or changes in any significant material handling or storage practices which could impact stormwater. The amended SWPPP will describe the new activities that could contribute to increased pollution, as well as control measures that have been implemented to minimize the potential for pollution.

This SWPPP will be amended if a state or federal inspector determines that it is not effective in controlling stormwater pollutants discharged to waterways.

REVISION NUMBER	SECTION CHANGED	REASONS FOR REVISION(S)	DATE	REVISION APPROVED BY

1 INTRODUCTION

1.1 BACKGROUND

This SWPPP was prepared by the City of Cambridge to meet the requirements of the United States Environmental Protection Agency's (EPA) 2016 *National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4) in Massachusetts*, hereafter referred to as the 2016 MS4 Permit or 'the Permit'. This section describes the regulatory program that requires the preparation of this document and the applicability to the City of Cambridge Water Department Facility, hereafter referred to as the Facility.

1.2 2016 MS4 PERMIT SWPPP REQUIREMENTS

The 2016 MS4 Permit requires that the City of Cambridge address six Minimum Control Measures (MCMs). These measures include the following:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination (IDDE) Program
4. Construction Site Stormwater Runoff Control
5. Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management)
6. Good Housekeeping and Pollution Prevention for Permittee Owned Operations

Per Part 2.3.7.b. of the 2016 MS4 Permit, MCM 6 includes the development and implementation of written SWPPPs for all permittee-owned or operated maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants may be exposed to stormwater. Thus, the City of Cambridge is required to develop and implement SWPPPs within two (2) years of the effective date of the permit; by July 1, 2020. The permit requires that the SWPPP include the following items:

- Stormwater Pollution Prevention Team
- Description of the facility and identification of potential pollutant sources, including a site map identifying on-site activities

- Identification of stormwater controls
- Management practices, such as: minimizing or preventing exposure, good housekeeping, preventative maintenance, spill prevention and response, erosion and sediment control, management of stormwater runoff, employee training, and maintenance of control activities
- Quarterly (at a minimum) site inspections, documentation, and annual reporting

This SWPPP meets these requirements by:

- Identifying the Stormwater Pollution Prevention Team, which are to be employees of the Facility and Cambridge Department of Public Works (DPW) staff who are responsible for developing, implementing, maintaining, and revising, as necessary, this SWPPP.
- Providing a description of the Facility and an inventory of the materials, vehicles, and equipment at the Facility that have the potential to cause stormwater pollution.
- Describing how stormwater is managed at the Facility.
- Reviewing activities that occur on-site that represent a potential for stormwater pollution and identifying locations on a map.
- Describing the Best Management Practices (BMPs) that shall be implemented at the Facility to reduce, eliminate, and prevent the discharge of pollutants to stormwater.
- Establishing a schedule and description of site inspections to be conducted by the Stormwater Pollution Prevention Team to determine if the SWPPP is effective in preventing the discharge of pollutants.
- Serving as a tool for personnel, including a place to maintain recordkeeping associated with these requirements.

2 STORMWATER POLLUTION PREVENTION TEAM

The Team Leader, is responsible for the overall implementation of this SWPPP, including assignment of the Stormwater Pollution Prevention Team (the team). Together the team is tasked with implementing, administering, and revising the SWPPP, regularly inspecting stormwater control structures, conducting stormwater training, and maintaining records. All members of the team must have ready access to the most recent SWPPP, supplementary SWPPP documentation such as the **Good Housekeeping Manual - Appendix A**, and applicable portions of the Permit, either in electronic or paper format.

Table 1: Stormwater Pollution Prevention Team

STORMWATER POLLUTION PREVENTION TEAM		
TITLE/NAME	RESPONSIBILITIES	CONTACT INFORMATION
Team Leader: Yilkal Bekele (DPW)	<ul style="list-style-type: none"> Overall implementation of the SWPPP, including certifying the completeness and accuracy of the SWPPP, inspections, annual comprehensive compliance evaluations, employee training, and recordkeeping. 	Office Phone: 617-349-4806 Cell Phone: 781-706-7007
Water Department Liaison: David Kaplan (Watershed Manager)	<ul style="list-style-type: none"> Providing DPW staff the information and access they need for their continued implementation and management of the City's permit (inspections, training, etc.). 	Office Phone: 617-349-4799 Cell Phone: 617-230-0362
Team Member: Michael Bonacci	<ul style="list-style-type: none"> Responsible for implementing emergency and spill response procedures. Implements preventative maintenance programs, oversees good housekeeping practices, conducts inspections, and assists with employee training Assists with all components of the stormwater program, as needed. 	Office Phone: 617-349-4797

3 SITE OPERATION AND DESCRIPTION

3.1 SITE SUMMARY

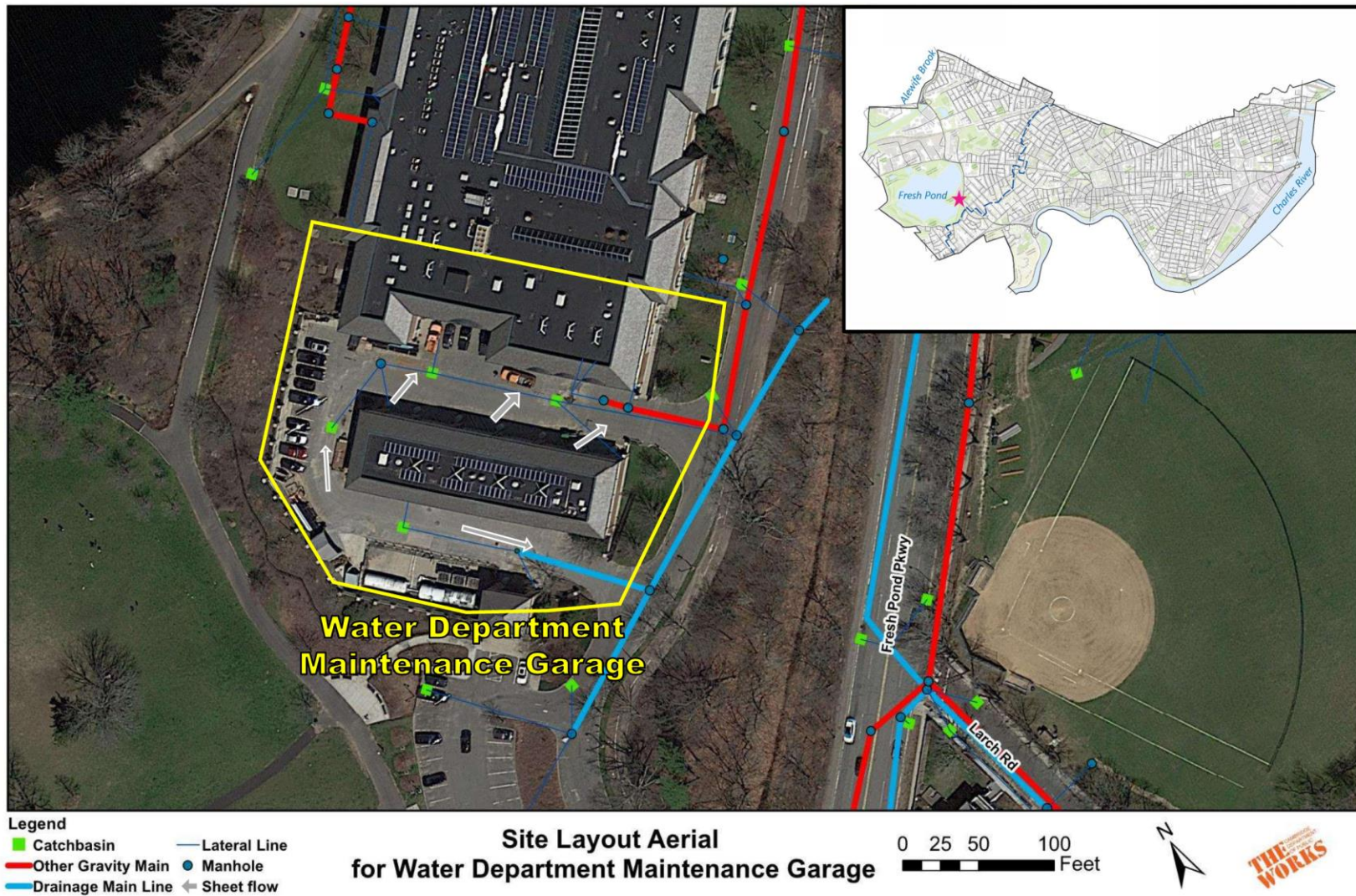
The Water Facility is located at 250 Fresh Pond Parkway, Cambridge, Massachusetts, in the West Cambridge neighborhood. The property consists of three (3) buildings: A Maintenance Garage, Storage Garage, and Chemical Delivery Room. The property also has two (2) covered fill areas, along with a paved driveway and parking area.

3.2 LOCATION

Facility Name:	Cambridge Water Department Facility
Facility Address:	250 Fresh Pond Parkway Cambridge, Massachusetts 02138
Latitude/Longitude:	42.382964, -71.143930
Facility Phone:	617-349-4770
Type of Facility:	Maintenance Garage, Vehicle/Equipment Storage, Chemical Handling
Operating Hours:	7:00 AM – 3:00 PM Monday - Friday

The following figure (**Figure 1**) provides information concerning the location, stormwater conveyance, and layout of the Facility. The figure has been configured to provide general information concerning the stormwater management at the Facility. This figure depicts the information required for the SWPPP as understood at this time. Additional site features and the locations of site activities are included in the **Site Plan** in **Appendix D**.

Figure 1 – Site Layout for the Water Department Maintenance Garage



3.3 SITE INSPECTION

The site inspection associated with the development of this SWPPP was completed on August 8, 2019 at 10:00 AM during clear conditions. The inspection was conducted by consultants and supported by Yilkal Bekele (Cambridge DPW). During the site inspection, information related to the Facility activities, maintenance operations, material storage, and spill history was gathered. Future inspections shall be conducted in accordance with Section 6.2.

3.4 SITE DESCRIPTION

The Facility serves the following general purposes for the Cambridge Water Department:

- provides an area for vehicle and equipment maintenance,
- provides an area for vehicle and equipment storage,
- provides an area for chemical delivery, and
- provides storage for material stockpiles.

Due to the Facility's activities, which are discussed in Section 3.9, it is listed on MassDEP's hazardous waste generator list as a Very Small Quantity Generator (VSQG).

The Maintenance Garage has three garage bays. There are two floor drains in each garage bay (six total). Records indicate that the floor drains are connected to an oil/water separator. Maintenance building activities in the garage bays include vehicle washing and vehicle repair. In addition, there are rooms for supply storage, including a tire storage room, an oil storage room, and a lofted storage space with pipes and fittings. A machine shop is located at the southern end of the Maintenance Garage shop; double doors separate this area from the garage bays.

The Storage Garage has eleven garage bays, with six on one side and five opposite. This building is used to store vehicles, such as a dump truck, backhoe, and small tractor, as well as equipment/supplies, such as safety cones, wheelbarrows, ladders, and scrap wood. Gasoline and diesel exhaust fluid are also stored within the building. There is a floor drain at each garage bay. Facility staff have indicated that these floor drains are connected to the sewer line.

The Chemical Delivery Room has 12 chemical intake lines, which are color coded and labeled. This room has two floor drains that are abandoned in place.

The material stockpile areas for gravel rock and fill are located at the northwest and southwest perimeter of the property. The northwest material stockpile area is a concrete block enclosure with a portable soft-cover canopy. The southwest material stockpile area is a brick structure with a permanent roof.

A U-shaped paved area surrounds the Storage Garage. This paved area provides access to the garage bays, as well as eleven parking spots on the north end of the property. Catch basins are spaced along the paved area, and a trench drain is adjacent to the northwest material stockpile.

3.5 SITE DRAINAGE

Sheet Flow

Sheet flow from the paved area of the Facility is routed to the catch basins on the property. Refer to the **Site Plan (Appendix D)** for locations of these catch basins. These catch basins shall be maintained by the City of Cambridge DPW in accordance with **Appendix A: BMP 10 “Catch Basin Cleaning.”** These catch basins have an outfall in a gravel swale between the Water Department access road and Fresh Pond Parkway. If the gravel swale were to reach capacity, overflow may flow to a catch basin on Fresh Pond Parkway. The Alewife Brook is the final point of discharge for the catch basins on Fresh Pond Parkway.

Drainage

The Maintenance Garage has six floor drains (two in each garage bay), and the Storage Garage has 12 floor drains (one in each garage bay). Records indicate that the Maintenance Garage floor drains are connected to an oil/water separator. Facility staff indicate that the Storage Garage floor drains are connected directly to the sewer system. Refer to **Site Plan (Appendix D)** for the approximate location of these floor drains.

3.6 RECEIVING WATER BODIES

The closest named water body to the Facility is Fresh Pond, which is located less than 500 feet away. As mentioned in Section 3.5, the outfall for the Facility’s catch basins is a gravel swale. However, if the swale were to overflow to Fresh Pond Parkway, the Alewife Brook would be the final point of discharge. The Alewife Brook (Segment MA71-04) has been categorized as a 303(d) List (Impaired) surface water in the Massachusetts Year 2016 Integrated List of Waters, which is the most recent final list available for Massachusetts. The impairment of this segment

of the river is considered a Category 5, meaning that more than one designated use is impaired and that a TMDL will be required. Water body impairments for this segment include debris/trash, copper, dissolved oxygen, Escherichia Coli, flocculant masses, lead, order, oil and grease, PCBs in fish tissue, total phosphorus, scum/foam, sediment bioassay, and transparency/clarity. No discharges go to Fresh Pond.

3.7 SITE STRUCTURES AND INVENTORIES

3.7.1 Maintenance Garage and Storage Garage

The Maintenance Garage is used for maintaining the Water Department's vehicles. Maintenance occurs on an as-needed basis, year-round, including vehicle washing and vehicle repair. The Storage Garage is used to house the Water Department's vehicles and equipment. Refer to **Site Plan (Appendix D)** for locations of vehicle storage and maintenance activities.

3.7.1.1 Vehicle and Equipment Inventory

Table 2 summarizes the inventory of the Facility's vehicles and equipment, as well as the number typically stored on-site.

Table 2: Vehicles and Equipment Inventory

Vehicle or Equipment Type	Overall Total	Typical Storage Location	Typical Number Stored on Site
Passenger Sedan Hybrid	6	Parking Lot	6
Utility Pickup Truck	9	Storage Garage	9
Utility Van	3	Storage Garage	3
Dump Truck	4	Storage Garage	4
Backhoe	2	Storage Garage	2
Frontend Loader	1	Storage Garage	1
Excavator	1	Storage Garage	1
Portable Air Compressor	1	Storage Garage	1
Portable Arrow Board	1	Storage Garage	1
Small Off-Road Utility Dump Diesel	2	Storage Garage	2
Small Off-Road Utility Dump Electric	1	Storage Garage	1
Forklift Propane	1	Chemical Delivery/Receiving Room	1
Small Tractor	1	Storage Garage	1
Portable Light Tower	1	Maintenance Garage	1
Riding Snow Blower Diesel	1	Storage Garage	1
Riding Mower Electric	1	Storage Garage	1
Skid Steer	1	Storage Garage	1

3.7.2 Chemical Delivery Room

The Chemical Delivery Room is used to provide chemicals necessary for the Water Department's operations. The 12 chemical intake lines are for hydrofluosilicic acid, aqua ammonia, sodium bisulfite, ammonium sulfate, sodium hypochlorite, cationic polymer, alum, and potassium hydroxide.

3.7.3 Material Stockpile Areas

The material stockpile areas for gravel rock and fill are located at the northwest and southwest perimeter of the property. The northwest material stockpile area is a concrete block enclosure with a portable canopy. The southwest material stockpile area is a brick structure with a permanent roof. Additional material stockpile areas are created with concrete block when needed.

3.7.4 Items Typically Stored On-site

Items within the Maintenance Garage are stored in designated rooms or between garage bays. For example, pipes and fittings are stored in a lofted area of the Maintenance Garage, tires are stored in a tire storage room, and oil drums are stored against a garage bay wall. The Storage Garage has equipment along the walls or between garage bays, such as safety cones, wheelbarrows, ladders, and scrap wood. Gasoline and diesel exhaust fluid are also stored within the building. Gravel and fill are stored in the covered material stockpile areas located at the northwest and southwest perimeter of the property. Dispersed throughout the paved area of the Facility are piles of pipes, hydrants, and safety cones. Newer pipe materials, hydrant spare parts, and construction materials are used as needed. Older pipe materials, hydrants, and scrap metals are collected for monthly disposal at a metal recycling facility.

3.7.4.1 Significant Material Inventory

Materials stored at the Facility include those related to the site activities discussed in Section 3.9. An inventory of the materials at the Facility is included in **Table 3**, which also reviews the likelihood for each identified material to come in contact with stormwater.

The locations of these material storage areas are provided in the **Site Plan (Appendix D)**.

Table 3: Material Inventory

Material	Storage Location	Typical Quantity	Potential Pollutant	Covered (C) or Enclosed (E)	Likelihood of Contact with Stormwater (Unlikely / Likely)
Petroleum-Based Compounds					
Diesel fuel	Unit 20 Fuel Pump Tank	60 gal	Petroleum hydrocarbons	C&E	U
Gasoline	Vehicle Maintenance Garage Storage Cabinet	30 gal	Petroleum hydrocarbons	C&E	U
Hydraulic Fluid	Vehicle Maintenance Garage Oil Storage Room	165 gal	Petroleum hydrocarbons	C&E	U
Motor Oil	Vehicle Maintenance Garage Oil Storage Room	250 gal	Petroleum hydrocarbons	C&E	U
Lubricants	Vehicle Maintenance Garage Stock Room	200 lbs. grease	Petroleum hydrocarbons	C&E	U
Transmission Fluid	Vehicle Maintenance Garage Oil Storage Room	55 gal	Petroleum hydrocarbons	C&E	U
Waste Oil	Vehicle Maintenance Garage Oil Storage Room	300 gal	Petroleum hydrocarbons	C&E	U
Total Volume of Oil at Maintenance Garage = 860 gal					
Non-Petroleum Significant Materials					
Antifreeze	Vehicle Maintenance Garage Oil Storage Room	55 gal	Ethylene glycol; potential source of BOD	C&E	U
Spray Lubricant	Vehicle Maintenance Garage Stock Room	70 cans	Petroleum hydrocarbons	C&E	U

Material	Storage Location	Typical Quantity	Potential Pollutant	Covered (C) or Enclosed (E)	Likelihood of Contact with Stormwater (Unlikely / Likely)
Sodium Hypochlorite	Chemical Storage Room	10,000 gal	Chlorides; pH adjustment	C&E	U
Sodium Bisulfite	Chemical Storage Room	500 gal	pH adjustment	C&E	U
Sodium Hydroxide	Chemical Storage Room	10,000 gal	pH adjustment	C&E	U
Acid/Fluoride	Chemical Storage Room	3,000 gal	pH adjustment	C&E	U
Aggregates	Storage Yard Concrete Enclosures	60 yds	Sediments	C&E	L
Batteries, Used Lead Acid	Vehicle Maintenance Garage	None	Lead, sulfuric acid; possible particulate matter and residual oil	C&E	U
Brake Fluid	Vehicle Maintenance Garage Stock Room	1 gal	Volatile organic compounds; non-petroleum-based oil	C&E	U
Deicer – Magnesium chloride (liquid)	Vehicle Storage Garage	80 bags	Chlorides	C&E	U
Detergents	Vehicle Maintenance Garage Wash Bay	55 gal	Surfactants	C&E	U
Paint, Spray	Main Stock Room	250 cans	Petroleum constituents, including volatile and semi volatile organic compounds	C&E	U
Paints, Oil-Based	Main Stock Room	25 gal	Petroleum constituents, including volatile and semi volatile organic compounds	C&E	U
Pesticides	Vehicle Storage Building	2 gal	Volatile and semi volatile organic compounds	C&E	U

Material	Storage Location	Typical Quantity	Potential Pollutant	Covered (C) or Enclosed (E)	Likelihood of Contact with Stormwater (Unlikely / Likely)
Herbicides	Vehicle Storage Building	2 gal	Volatile and semi volatile organic compounds	C&E	U
Sand	Storage Yard Bin	15 yds	Sediments	C	U
Solid Waste, Recyclable	Storage Yard Bin	Half Ton	Miscellaneous debris/solids, particulate matter, metals	E	U
Solid Waste, for Disposal	Dumpsters		Particulate matter, solids, metals	C&E	U
Spill Response Material (Speedi Dry or similar)	Vehicle Maintenance Garage, Vehicle Storage Garage, and Treatment Plant (not part of SWPPP)	250 lbs.	Particulate matter, solids, residual oil	C&E	U

3.7.4.2 Applicability of Spill Prevention, Control, and Countermeasure (SPCC) Requirements

Under federal regulations 40 CFR Part 112 (and Amendments), a SPCC Plan is required when a facility has an aboveground oil storage capacity greater than 1,320 gallons, when including containers with a capacity of 55 gallons or more. Since less than 1,320 gallons of oil is stored on site, this Facility is not subject to these requirements.

3.8 ADDITIONAL SITE FEATURES

3.8.1 Oil/Water Separator

All six floor drains in the Maintenance Garage are connected to an oil water separator located outside the Maintenance Garage. The oil/water separator is inspected quarterly and cleaned as needed, which is typically on an annual basis.

3.8.2 Solid Waste Management

There are two dumpsters on the paved area of the Facility. One dumpster is for invasive plants, while the other dumpster is for garbage. Both dumpsters have a cover and are emptied twice per week. On-site recycling is available and is collected once per week.

3.8.3 Liquid Oxygen

Liquid oxygen is in a posted, fenced off area adjacent to the brick material stockpile area common fill stockpile.

3.8.4 Parking Areas

The parking area is located along the northern end of the u-shape asphalt loop. The parking area contains eleven parking spaces.

3.9 SITE ACTIVITIES

Site activities support the day to day responsibilities of the Facility. The following activities regularly occur:

- Chemical delivery
- Material stockpile storage
- Solid waste management
- Vehicle and equipment storage
- Vehicle and equipment maintenance/repair
- Vehicle and equipment washing
- Waste handling and disposal

Below is a discussion of each site activity with potential stormwater pollutant sources, as well as measures that shall be taken to prevent and minimize pollution. Refer to the **Site Plan (Appendix D)** for locations of site activities.

3.9.1 Chemical Delivery

Potential Sources of Stormwater Pollution

Leaks and spills of chemicals can migrate to the storm drain system if not promptly controlled. Fires may occur if chemicals are not stored appropriately.

Pollution Prevention

Chemicals shall always be stored indoors in well-ventilated, dry locations. Floors of storage areas shall be watertight, impervious, and provide spill containment. In case a spill or leak does occur, storage areas and any vehicles transporting chemicals shall be equipped with a spill response kit. Refer to **Appendix A: BMP 7 “Spill Prevention and Response,”** and **Appendix A: BMP 4 “Hazardous Material Storage.”**

The Facility has chemical delivery occur in a dry, covered room. This room is inspected daily for any leaks, issues, or concerns. A concrete trough is located beneath the chemical delivery lines to contain any spills. Floor drains within the Chemical Delivery Room are abandoned. Spill clean-up materials are available in this room.

3.9.2 Material Stockpile Storage

Potential Sources of Stormwater Pollution

Stockpiled materials such as gravel, loam, and crushed rock represent a potential source of pollution. When stored unprotected outdoors, material stockpiles are exposed to precipitation. When the resulting eroded material enters the stormwater system, the sediment can quickly fill the sumps of catch basin structures, rendering them ineffective.

Pollution Prevention

To avoid contamination of stormwater by stockpiled materials, erosion and sediment control measures shall be implemented. Stockpiles shall be stabilized or covered with impermeable sheeting if they are to remain exposed for more than two weeks. If the stockpile location becomes a permanent storage site, a roofed structure shall be considered to reduce erosion. Sediment barriers shall be placed around the perimeter of the storage site to prevent runoff from entering catch basins. Refer to **Appendix A: BMP 3 “Materials Management”** for more information.

Facility staff place stockpiles in designated covered areas with concrete block or brick on three sides. The parking lot shall be swept if sediment accumulation is observed. Any new stockpile storage areas that are added by Facility staff shall be enclosed within three sides of concrete block and have a sediment barrier and proper covering.

3.9.3 Solid Waste Management

Potential Sources of Stormwater Pollution

Solid waste production and storage locations present the threat to contaminate stormwater with pathogens, including nutrients, such as phosphorus and nitrogen, metals, and sediments. Solid waste may be classified as both hazardous and non-hazardous waste consisting of agricultural, construction and demolition, industrial, municipal, and tire waste.

Pollution Prevention

To prevent or reduce the potential for stormwater pollution from solid waste management practices, waste storage containers shall remain closed other than during use. Waste storage locations shall be covered and adequately labeled. All waste storage containers and locations shall be routinely inspected for signs of spills, leaks, corrosion, or general deterioration.

Refer to **Appendix A: BMP 16 – Waste Management** for additional information.

The Facility utilizes two dumpsters for waste management, which are maintained twice per week. Older pipes and scrap metals are disposed at a metal recycling facility typically on a monthly basis. The Facility should cover any construction materials and/or debris, such as pipes, fire

hydrants, and signposts, that are stored outside for more than two weeks. If there is adequate room available, this material shall be stored in the Storage Garage.

3.9.4 Vehicle and Equipment Storage

Potential Sources of Stormwater Pollution

Vehicle and equipment storage activities are a potential source of pollution due to the diesel fuel, gasoline, oil, hydraulic fluid, antifreeze, and similar hazardous material or fuel the vehicles may contain. In addition, vehicles may pick up pollutants during off-site activities and then deposit these pollutants at the Facility.

Personal vehicles for employees and visitors are also a potential source of pollution. During dry periods, oils, grease, coolant, and particulate matter from vehicle underbodies, brake pads, and tires may be deposited on parking surfaces. During a stormwater event involving significant amounts of precipitation, these non-industrial pollutants may become suspended in stormwater runoff.

Pollution Prevention

Vehicles and equipment shall be stored in accordance with **Appendix A: BMP 5 “Vehicle Fueling, Maintenance, and Storage.”** Regular visual inspection and maintenance of vehicles and equipment can greatly reduce the potential for pollution by identifying and addressing leaks before they become an issue. Equipment shall be stored indoors to prevent the possibility of pollutants from entering the adjacent catch basins on the property. Parking lots shall be swept by the City of Cambridge in accordance with **Appendix A: BMP 9 “Street and Parking Lot Sweeping.”**

Facility staff perform regular inspections and store vehicles and equipment indoors. Floor drains within the Storage Garage are discharging to the sewer system.

3.9.5 Vehicle and Equipment Maintenance and Repair

Potential Sources of Stormwater Pollution

Vehicle and equipment maintenance and repair often require the use of harmful liquids such as fuels, oils, and lubricants, and have the potential for producing dust, scrap and by-products that may contain pollutants. Both accidental and purposeful spillage, i.e., a leaky oil pan needing repair vs. draining the pan during an oil change, can lead to situations where pollutants can potentially enter the stormwater system if maintenance and repair activities are not approached properly.

Pollution Prevention

Vehicles and equipment shall be maintained in accordance with **Appendix A: BMP 5 “Vehicle Fueling, Maintenance, and Storage.”** Proper maintenance and repair for vehicles and equipment shall include a preliminary assessment of potential pollutant sources. This assessment shall be used to determine the best means of containing any potential spills or by-products of the situation at hand. Approved containers shall be used to capture hazardous liquids, such as antifreeze, brake fluid, and transmission fluid, to then be disposed of according to applicable MassDEP and EPA guidelines. In addition, contaminated parts removed or replaced on any vehicles or equipment shall be disposed of properly.

Facility staff perform maintenance and repairs indoors to prevent the possibility of spills causing pollutants to enter adjacent catch basins. Maintenance is performed by personnel trained in spill response procedures, and spill cleanup materials are maintained on-site. Hazardous liquids are captured and disposed according to VSQG guidelines. Well-organized work areas are maintained. The floor is swept regularly and washed down on occasion to reduce dust. Floor drains within the Maintenance Garage discharge to the oil/water separator located adjacent to the Maintenance Garage.

3.9.6 Vehicle and Equipment Washing

Potential Sources of Stormwater Pollution

Vehicle and equipment washing activities are a potential source of pollution, not only from petroleum products and pollutants deposited on the exterior of the equipment, but also from nutrients and sediment being washed into water bodies from the act of washing itself. Although some cleaning agents are becoming environmentally friendly, many still contain regulated

contaminants. Due to the possibility for multiple types of pollutants, vehicle and equipment washing activities have a high potential for degrading stormwater quality.

Pollution Prevention

Vehicles and equipment shall be washed in accordance with **Appendix A: BMP 6 “Vehicle Washing.”** Washing shall occur in the Maintenance Garage bay. Due to the likely connectivity of the floor drains to an oil/water separator, detergents shall not be used that disperse oil in wash water. Therefore, it is recommended that high pressure water is used with no cleaning agent. However, if a cleaning agent must be used, it shall be a non-emulsifying product such as QOR-100 (“Quick Oil Release”). Absorbent pads and drip pans shall be used to collect spills and leaks observed during washing activities. Refer to **Appendix A: BMP 7 “Spill Prevention and Response”** for spill prevention and response procedures. Dry cleanup methods such as vacuuming and sweeping shall be used whenever possible to avoid washing down floors with water. In addition, wash water shall be contained in the garage so it does not flow to the adjacent catch basins on the property, which the City of Cambridge shall maintain as detailed in **Appendix A: BMP-10 “Catch Basin Cleaning.”**

The Facility washes all vehicles in the Maintenance Garage bay. The Water department uses phosphate free detergent and vehicles can be washed without detergent if necessary.

3.9.7 Waste Handling and Disposal

Waste oil containers can leak, and spills can occur during transportation activities of collecting used waste oil for disposal or transferring oil between storage containers. These situations can lead to situations where petroleum can potentially enter the stormwater system

Pollution Prevention

Materials shall be handled and stored in accordance with **Appendix A: BMP 3 “Materials Management”** and **BMP 4 “Hazardous Materials Storage.”** All waste oil containers shall be properly labeled and stored indoors with secondary containment. Floor drains in waste oil storage areas shall drain to an oil/water separator rather than the storm drain system. Containers shall be regularly inspected for rust, leaks, or other signs of deterioration. Defective containers shall be

promptly removed and replaced. Care shall be taken when transferring used oil to and from storage containers. A spill response kit shall be located wherever waste oil is stored. Facility personnel shall know where the spill kit is located and be familiar with the procedures outlined in **Appendix A: BMP 7 “Spill Prevention and Response.”**

Hazardous waste materials shall be either collected by a third-party vendor contracted by the City of Cambridge or collected at the annual Household Hazardous Waste Day (HHHD) that is hosted for the benefit of City of Cambridge residents. These materials shall be properly labeled and stored using appropriate BMPs between the time of generation and disposal. Products shall not be mixed prior to disposal, unless specifically recommended by the manufacturer. When possible, steps shall be taken to recycle waste oil or reduce the amount generated. According to a review of the Massachusetts Hazardous Waste Generators in May 2020, the Cambridge Water Department was listed as a Very Small Quantity Generator (VSQG) with EPA ID MAD981894868. This designation, VSQG, indicates that the CRLS Garage generates less than 100 kilograms or less per month of hazardous waste or one kilogram or less per month of acutely hazardous waste.

Waste oil is stored in a 300-gallon waste storage container, located in the Oil Storage Room. This waste oil is pumped out by an outside vendor, as needed, which is typically quarterly. No containers are brought outside. Spill cleanup materials are available within the Maintenance Garage.

3.10 NON-STORMWATER DISCHARGES

The MS4 permit allows certain categories of non-stormwater discharges, provided that the discharge is not a significant contributor of pollutants to the MS4. No allowable non-stormwater discharges occur at the Facility.

4 STORMWATER MANAGEMENT

4.1 STRUCTURAL BMPS

There are no permanent structural BMPs presently used at the Facility to maintain water quality. Permanent structural BMPs would include on-site constructed systems that provide pretreatment or treatment of stormwater flows.

4.2 SEDIMENT AND EROSION CONTROL

The Facility is either paved or covered by buildings, with no areas of exposed soil that otherwise could be subject to soil erosion or sedimentation. However, aggregate and fill are stored in the designated Material Stockpile Areas of the Facility. Although these areas are covered, they still provide the opportunity for sediment to buildup in the parking lot. As stated in Section 3.9.2, the Facility shall incorporate the use of sediment barriers on the fourth side of the Stockpile Areas to minimize the migration of materials.

4.3 NON-STRUCTURAL CONTROLS

4.3.1 Good Housekeeping

Good housekeeping is a BMP that includes clean and organized work environments with routine cleanup schedules, orderly work tasks and procedures, proper material handling and storage, up-to-date material inventories, and thorough employee training. A clean and orderly work area reduces the possibility of accidental spills caused by collisions or mishandling of chemicals and equipment. Well maintained material storage areas reduce the possibility of stormwater mixing with products or pollutants.

The following is a list of good housekeeping measures that shall be practiced at the Facility:

- Spill materials and cleanup kits are to be maintained at all locations where oil materials and fluids are used, stored, may be present, or where activities may result in a spill.
- All fuel and chemical spills shall be cleaned up. Used spill cleanup materials are to be disposed of properly.

- Staff is to be familiar with manufacturer directions for proper use of materials and associated Safety Data Sheets (SDSs).
- Hazardous materials storage lockers with spill containment are to be used.
- All hazardous material storage areas and containers are to have proper signage, labels, restricted access, locks, inventory control, overhead coverage, and secondary containment.
- Materials (including waste materials) are to be stored indoors or in covered areas to minimize exposure to stormwater.
- Storage areas are to be located away from vehicle and equipment paths to reduce the potential of accident related leaks and spills.
- Drip pans are to be used for maintenance operations involving fluids and under leaking vehicles and equipment waiting repair.
- Fueling of equipment shall be completed indoors.
- Staff is to be familiar with proper use of equipment.
- Any equipment and supplies stored temporarily outside shall be covered with a tarp.
- Waste materials are to be collected and disposed of properly and regularly.
- Different types of wastes are to be separated as appropriate.
- Materials are to be recycled when possible.
- Only the amount of materials required to complete a job shall be obtained.
- Tools and materials are to be returned to designated storage areas after use.
- Well-organized work areas are to be maintained.
- Clean and dry floors are to be maintained. Loading and unloading areas are to be regularly swept. Work areas are to be regularly swept or vacuumed.
- Windblown debris within the Facility shall be regularly collected.
- Sediment and particulate matter shall be regularly removed from paved areas and from around catch basins.

The following list can be used to establish good housekeeping procedures:

- Is there evidence of ongoing drips or leaks from equipment or machinery at the Facility?
- Is the Facility orderly and neat? Is there adequate space in work areas? Are walkways and passageways easily accessible, safe, and free of protruding objects, materials, or equipment?

- Is solid waste removed regularly?
- Is there evidence of dust on the ground from operations?
- Are cleanup procedures used for spills?
- Is good housekeeping included in the employee training program?
- Are good housekeeping procedures and reminders posted in appropriate locations around the Facility?
- Are there regular housekeeping inspections?

4.3.2 Preventative Maintenance

Preventative maintenance can minimize the occurrence of stormwater pollution by addressing issues before they become problems. Vehicles, equipment, and containers shall be regularly inspected to prevent leaks of fuel, oil, and other liquids.

The following is a list of preventative maintenance procedures that shall be practiced at the Facility:

- All staff members are to be aware of spill prevention and response procedures.
- All staff members are to receive formal spill prevention and response procedure training.
- All equipment fueling procedures are to be completed by qualified personnel trained in spill response procedures.
- Vehicle storage areas are to be inspected frequently for evidence of leaking oil.
- Material storage tanks and containers are to be regularly inspected for leaks and corrosion.
- All material and bulk deliveries are to be monitored by Facility employees.
- All waste oil is to be fully contained and the containers are to be inspected regularly.

Regularly scheduled preventive maintenance and operation practices is a BMP that ensures that processes and equipment are working correctly. During maintenance checks, if an existing or potential problem is found which could result in an impact to stormwater, it shall be corrected in a timely manner or the equipment shall be taken out of service.

5 SPILL RESPONSE

5.1 LOCATION OF LEAK AND SPILL CLEANUP MATERIALS

Leak and spill cleanup materials are stored at the Facility in order to facilitate rapid response. Locations and types of leak and spill cleanup materials are identified in the following table. The supply of spill cleanup materials at the Facility shall be maintained.

Table 4: Location of Leak and Spill Cleanup Materials

Location	Materials Available
Vehicle Maintenance Garage Stock Room	Speedi-Dry, Oil Booms, Oil Absorbent Pads
Vehicle Storage Garage	Speedi-Dry, Oil Booms, Oil Absorbent Pads
Chemical Receiving Area	Speedi-Dry, Oil Booms, Oil Absorbent Pads
Lab (Not part of SWPPP)	Acid/Base Spill Kit
Treatment Plant (Not part of SWPPP)	Speedi-Dry, Oil Booms, Oil Absorbent Pads

5.2 SPILL RESPONSE ACTIONS

It is the responsibility of any employee who discovers a spill to take the following action: assess the hazards of the spill, secure the area, and immediately call the Stormwater Pollution Prevention Team Member. The information provided by the employee at the time of the spill will allow the Team Member to contact the appropriate response personnel. Employees shall be prepared to provide the following information:

- Location, date, and time of spill
- Material spilled
- Estimated amount
- Cause of spill
- Injuries
- Proximity to drains
- Action currently taken or underway

The Team Member has the responsibility for coordinating all emergency response measures and has the authority to commit the resources necessary to carry out response actions.

- During an emergency, the Team Member shall (as necessary):
 - activate alarm systems,
 - notify emergency responders as needed (fire, spill responders, ambulance),
 - notify outside agencies (EPA, MassDEP, National Response Center), as needed and detailed in **Appendix A - BMP7 “Spill Prevention and Response” and Table 5.**
 - notify, communicate, and coordinate with the Team Leader and DPW, as needed,
 - identify the source of the spill and cause,
 - assess the health or environmental hazards, and
 - take all reasonable measures to stabilize the situation.

Table 5: Spill Response and Cleanup Contact List

Title and Name	Phone Number
Safety Officer: Kenneth Bergeron	617-349-9470
Site Supervisor: David Kaplan	617-349-4799
Fire Department	617-349-4900
MassDEP 24-Hour Spill Reporting	(888)-304-1133
Mass DEP Northeast Regional Office	(978) 694-3200
Hazardous Waste Compliance Assistance Line	(617) 292-5898
Household Hazardous Products Hotline	(800) 343-3420
Massachusetts Department of Fire Services	(978) 567-3100 or (413) 587-3181
Licensed Site Professionals Association (Wakefield, MA)	(781) 876-8915
Licensed Site Professionals Board	(617) 556-1091

- After an emergency, the Team Member shall (as necessary):
 - arrange for the clean-up, storage and disposal of residues and contaminated soil,

- arrange for the decontamination and maintenance of emergency equipment,
- submit required internal and external reports, as detailed in **Appendix A - BMP7 “Spill Prevention and Response”**, and
- notify the Team Leader.

The Stormwater Pollution Prevention Team response actions include the following.

1. Assess the area for any immediate dangers to health or safety (i.e., a fire risk).
 - If any dangers are present and it is not safe to remove the risk, warn employees in the vicinity, move away from the area, and call 911.
 - If safe to do so, eliminate all immediate dangers (such as possible ignition sources if material spilled is unknown or flammable/combustible).
2. Notify the Team Member and then continue the spill response. The Team Member shall assess additional notification requirements provided in **Appendix A - BMP7 “Spill Prevention and Response.”**
3. Control the spill to minimize impacts.
 - Try to stop or plug the leak. Retrieve the spill kit from the closest location. Use protective gear (gloves, goggles, protective clothing, etc.).
 - Assess the size of the leak and any immediate threat of the spill reaching the floor/storm drains.
 - If there is an immediate threat and there are no safety concerns, then attempt to block the spill from encountering the floor/storm drain by using spill kit materials, such as absorbent and/or sock booms.
4. Clean up the impacted area.
 - Once the spill has been contained and any immediate threat to storm drains has been minimized, Site personnel may continue to clean up if they are able to do so without risking injury. Otherwise, the Team Member or designee will contact the spill cleanup contractor and dispatch them to clean up the spill.

- Spill cleanup for large spills are to be handled by a spill cleanup contractor as coordinated by the Team Member.

5.2.1 Discharge Reporting

Spills shall be documented using the **Spill Documentation Form** found in **Appendix B**. Note that based on the quantity of spilled material, type of chemical, or impact, notification to agencies provided in **Appendix A – BMP 7 “Spill Prevention and Response”** may be required immediately after having knowledge of the spills. The following information must be provided in the discharge report:

- The date and time of the discharge;
- The type of material discharged;
- Estimates of the total quantity of substance discharged;
- The source of the discharge;
- A description of all affected areas (i.e., concrete, etc.);
- The cause of the discharge;
- Any damages or injuries caused by the discharge;
- Actions being used to stop, remove, and mitigate the effects of the discharge;

5.3 PREVIOUS SPILL INCIDENTS

According to the Commonwealth of Massachusetts Energy and Environmental Affairs Data Portal, no significant spills or leaks have occurred at the Facility in the previous three years.

6 SWPPP IMPLEMENTATION

6.1 EMPLOYEE TRAINING

Regular employee training is required for employees who work in areas where materials or activities are exposed to stormwater, or who are responsible for implementing activities identified in the SWPPP, including all members of the Stormwater Pollution Prevention Team. Stormwater Pollution Prevention Team members are to meet, as needed at the discretion of Team Leader, to discuss the effectiveness of and improvements to the SWPPP.

The Stormwater Pollution Prevention Team Leader is responsible for the stormwater management training. This position coordinates training related to stormwater management on an as needed basis at the discretion of the Team Leader to review specific responsibilities for implementing this SWPPP, what and how to accomplish those responsibilities, including BMP implementation. Training shall address and discuss each of the sections in this SWPPP that are relevant to individual employees' responsibilities. Training will consist of a description of employee and management responsibilities in minimizing the risk of stormwater pollution.

Additionally, general awareness training is provided regularly (preferably annually) to all employees whose activities may impact stormwater discharges. The purpose of this training is to educate workers on activities that can impact stormwater discharges and to help implement BMPs.

The topics below will be covered at employee training sessions.

1. Spill prevention and response.
2. Good housekeeping.
3. Materials management practices.

Stormwater Pollution Prevention Team members shall meet at least once a year to discuss the effectiveness of and improvements to the SWPPP. **Appendix C** contains copies of training documentation from these training activities including attendance sheets, instructor name and affiliation, date, time, and location of the training.

Important training topics include:

1. The procedures to be followed for inspections and monitoring.
2. The procedures to be followed upon recognition of a hazard or potential hazard.
3. Potential spill sources and locations, and drainage routes at the Site.
4. How to report spills and the appropriate individuals to contact.
5. How to quickly and safely implement the spill response procedures.
6. The location and contents of spill response equipment and spill kits.
7. Information that must be provided to on-site contractors, temporary personnel, and fuel/oil delivery/pick-up personnel for minimizing and preventing spills from occurring.
8. Past spill incidents and resulting response activities for lessons learned and improvements.

6.2 SITE INSPECTION REQUIREMENTS

Visual inspections of the Facility must be conducted quarterly during normal operating hours. At least one of the quarterly inspections shall occur during a period when it is raining. The designated Stormwater Pollution Prevention Team members will inspect the Facility for potential stormwater or spill problems and record the results of the inspection using the inspection form and Site Plan (**Appendix D**). Any noted deficiencies shall be reported the Water Department Liaison and the Team Leader for prompt corrective action. Copies of completed inspections shall be included in **Appendix E**.

The inspector shall check for evidence of pollution, evaluate non-structural controls in place at the Site, and inspect equipment. The site inspection must include:

- The inspection date and time
- The name of the inspector
- Weather information and a description of any discharge occurring at the time of the inspection
- Identification of any previously unidentified discharges from the Site
- Any site activities and control measures that need corrective action
- Any SWPPP changes required as a result of the inspection
- Signed certification statement

- Site Plan

Corrective actions may be required based on evidence of past stormwater pollution or the high potential for future stormwater pollution to occur. Information about any issues and the respective corrective actions must be included in **Appendix E**. The permittee must repair or replace control measures in need of repair or replacement before the next anticipated storm event if possible, or as soon as practicable. In the interim, the permittee shall have back-up measures in place.

Completed inspection forms must be kept with the SWPPP (**Appendix E**) and must state the problem, the solution, and when the solution was implemented. Copies of the completed inspection forms shall be provided to the Team Leader.

6.3 RECORDKEEPING AND REPORTING

Implementation of this SWPPP includes the documentation of:

- Spill events.
- Training.
- Quarterly visual inspections and results.
- Annual SWPPP review documentation.

The permittee must keep a written record (hardcopy or electronic) of all activities required by the SWPPP including but not limited to maintenance, inspections, and training for a period of at least five (5) years. This SWPPP shall be kept at the Facility for use on-site and shall be updated if any of the conditions in Section 6.4 occur. An electronic copy of the SWPPP and all associated records, reports, and documents shall also be maintained by the Team Leader. The SWPPP and records shall be made available to state or federal inspectors and the general public upon request.

The 2016 Massachusetts MS4 Permit requires that each permittee report on the findings from site inspections in the annual report to EPA and MassDEP. **The results of the quarterly inspections will be described in the Annual Report, including any corrective actions taken,** to demonstrate that operation of the Facility complies with the 2016 Massachusetts MS4 Permit.

6.4 TRIGGERS FOR SWPPP REVISIONS

The City of Cambridge shall **annually review** and update the SWPPP if necessary. This will be conducted to ensure that all elements of the SWPPP are accurate. Review documentation shall be retained as part of this SWPPP as described in Section 6.3 of this document. Each element of this SWPPP shall be evaluated and amended appropriately. The annual update shall consist of the following:

- An update of the list of significant spill or notation that no spills have occurred.
- A documented re-evaluation of the effectiveness of the BMPs.
- An update of figures if changes have occurred

In addition to modifications to the SWPPP resulting from annual comprehensive evaluations of compliance, the SWPPP will be amended whenever there is a change in design, construction, operations or maintenance that materially affects the potential for a discharge of oil or hazardous materials that could be harmful to human health or the environment. Changes that may trigger revision include:

- An increase in the quantity of any potential pollutant stored at the Facility;
- The addition of any new potential pollutant (not already addressed in this SWPPP) to the list of materials stored or used at the Facility;
- Physical changes to the Facility that expose any potential pollutant (not presently exposed) to stormwater;
- Presence of a new authorized non-stormwater discharge at the Facility;
- Addition of an activity that introduces a new potential pollutant;
- A change in emergency coordinators;
- The SWPPP fails in an emergency;
- The list of emergency equipment changes;
- Applicable regulators are revised; or
- As required by the State.

Changes in activity may include an expansion of operations, or changes in any significant material handling or storage practices which could impact stormwater. The amended SWPPP will describe the new activities that could contribute to increased pollution, as well as control measures that have been implemented to minimize the potential for pollution.

As stated in Section 6.3, any amendments to the SWPPP will be recorded in the Table located in the Record of Revisions section at the front of this document.

7 REFERENCES

General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts. United States Environmental Protection Agency issued April 4, 2016.

List of Massachusetts Hazardous Waste Generators. State of Massachusetts, January 15, 2019.

Massachusetts Year 2016 Integrated List of Waters, Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Massachusetts Department of Environmental Protection, January 2020.

Stormwater Pollution Prevention Plan Appendix A Standard Operating Procedures, Central Massachusetts Regional Stormwater Coalition, Fall 2018.

Stormwater Pollution Prevention Plan Template. Central Massachusetts Regional Stormwater Coalition, Fall, 2018.

APPENDIX A: GOOD HOUSEKEEPING MANUAL

City of Cambridge, MA

Department of Public Works

Good Housekeeping Manual - Best Management Practices to Prevent Stormwater Pollution

Excerpt for SWPPPs



Updated: June 2020

**THE
WORKS**
CAMBRIDGE
DEPARTMENT
OF PUBLIC

**City of Cambridge, MA
Department of Public Works
of Good Housekeeping Manual–
Best Management Practices to Prevent Stormwater Pollution
Excerpt for SWPPPs**

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BMP 1 - ROAD SAND/SALT APPLICATION AND STORAGE

DESCRIPTION

DPW's policy is to strictly use salt on street rights-of-way and to pre-treat roadways before and expected snow/ice storm with a brine solution made from "solar salt". A few facilities do use sand/salt mixtures. Proper road salt and facility sand/salt applications storage is necessary to prevent contamination to surface and ground water supplies. Salts are very soluble—once in contact with water there is no way to remove salt. The major reasons for keeping salt covered and controlling use are that salt:

- Kills vegetation
- Corrodes infrastructure
- Blocks storm drains and swales
- Increases sedimentation to streams and rivers
- Small quantities (5% road salt) contain phosphorus, nitrogen, copper, and cyanide

POLLUTION PREVENTION APPROACH

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater system.

SUGGESTED BEST MANAGEMENT PRACTICES

Proper Storage

Storage facilities for salt and sand/salt mixtures should have the following key elements:

- Covered structure on impervious surface.
- Drainage should be diverted away from storage facility.
- Sand/salt handling should be done within storage facility.
- Should not be located in a water supply watershed or within 100-year floodplain.

Proper Disposal

Disposal of sand/salt mixtures should not be done in the following areas:

- Wetlands
- Any surface waters
- Well locations and public drinking supplies

Proper Removal

- Street cleaning of all City roadways once per month between April and December.
- Catch basin cleaning completed, as necessary.

Proper Use

- Establish a low salt area near any water bodies or residential areas.
- Regulate the amount of road salt applied to prevent over-salting of motorways and increasing runoff concentrations.
- Vary the amount of salt applied to reflect site-specific characteristics, such as road width and design, traffic concentration, and proximity to surface waters.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities
- Street Rights-of-Way

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

REFERENCE

- "Cambridge Public Works Snow Operations"

- Provide calibration devices for spreaders in trucks to aid maintenance workers in the proper application of road salts.
- Establish air temperature and snow depth conditions favorable for successful use of salt.
- Use alternative materials, such as sand or gravel, in especially sensitive areas.
- Use alternative products such as Magic Salt.

INSPECTION PROCEDURES

- Inspect salt storage shed for leaks on a regular basis including Fall and Spring.
- Inspect salt application equipment including calibration equipment and spreaders.
- Inspect salt regularly for lumping or water contamination.
- Inspect surface areas for evidence of runoff – salt stains in ground near and around the salt storage shed, loading area, or downslope.
- Inspect for excessive amounts of salt on roads.

MAINTENANCE PROCEDURES

- Service trucks and calibrated spreaders annually to ensure accurate, efficient distribution of salt.
- Educate and train operators on hazards of over-salting to roads and environment at the beginning of the snow season as part of meetings with supervisors and drivers.
- Repair salt storage shed leaks.

BMP 2 - SNOW STOCKPILING/REMOVAL

DESCRIPTION

Proper snow management in terms of stockpiling and removal can prevent or minimize runoff and pollutant loading impacts. Snow piles can contain trash, nutrients, sediments, salt, sand, and vehicle pollutants (petroleum, antifreeze, and oil) that can directly be carried into surface waters during snowmelt.

POLLUTION PREVENTION APPROACH

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

The City's Policy is to restrict stockpiling of snow. During extreme conditions when stockpiling is necessary the following practices should be applied:

- Do not stockpile snow near or within direct drainage to surface waters.
- Do not stockpile snow in wooded areas, around trees, or in vegetated buffer zones due to sediment and salt damage to vegetation.
- Stockpile snow in pervious areas where it can slowly infiltrate.
- During plowing activities on pervious surfaces, blading (plow lowers blade below ground surface level and plows the upper layers of soil in addition to overlying snow) should be avoided to prevent erosion.
- Do not dispose of snow into waters of the United States. Snow disposal activities, including selection of appropriate snow disposal sites, will adhere to the Massachusetts Department of Environmental Protection Snow Disposal Guidance, Guideline No. BWR G2015-01 (Effective Date: December 21, 2015), located at:
<http://www.mass.gov/eea/agencies/massdep/water/regulations/snow-disposal-guidance.html>

INSPECTION PROCEDURES

- Check snow piles for debris that could be windblown.

MAINTENANCE PROCEDURES

- Contain sediments as snow melts and removed every Spring from snow storage areas. This includes sweeping roadways and parking lots or other impervious areas.
- During plowing activities, avoid blocking drainage structures including catch basins, swales, and channels.

TARGETED FACILITIES AND OPERATIONS

- City-Wide Operations
- Street Rights-of-Way

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Oil & Grease

REFERENCE

- "Cambridge Public Works Snow Operations"

BMP 3 - MATERIALS MANAGEMENT

DESCRIPTION

Materials management entails the selection of the individual product, the correct use and storage of the product, and the proper disposal of associated waste(s). It is important to be responsible with common chemicals and solvents including paints, cleaners, and automotive products to reduce contamination to stormwater runoff.

POLLUTION PREVENTION APPROACH

Proper management reduces the likelihood of accidental spills or releases of hazardous materials into storm drains or during storm events. In addition, health and safety conditions at the facility will improve.

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

Material Inventory

- Identify all hazardous and non-hazardous substances by reviewing purchase orders and conducting a walk-through of facility.
- Compile Material Safety Data Sheets (MSDS) for all chemicals. These should be readily accessible to all facility employees.
- Label all containers of significant materials that include cleaners, fuels, and other hazards.
- Identify handling, storage, and disposal requirements of all chemicals.
- Use environmentally friendly or non-hazardous substitutes when appropriate that include but not limited to H₂Orange₂, Orange Thunder, and Simple Green®.
- Keep hazardous materials and waste off the ground.
- All drums and containers should be in good condition and properly labeled.
- Loose materials including any gravel piles should be covered or placed in shelter.

Solid Waste

- Trash storage bins, dumpsters, and disposal areas should be clean and free of debris, especially those located near catch basins.
- Dumpsters maintained in good condition and securely closed at all times.
- Clean up equipment and materials.
- Dispose of within local, state, and federal laws. This includes Section 8.24 of the City Ordinance.
- Temporary trash storage should be inspected weekly before taken to the local privately owned transfer station.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities
- All City-Owned Parks and Open Spaces
- All Fleet Vehicle and Equipment Operations

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

- Debris piled including sweepings, construction, and wood debris should be inspected weekly before removed off site.

INSPECTION PROCEDURES

- Physical on-site verification of sealed floor drains (or redirected to sanitary sewer).
- Regular inspection of material storage areas (inside and outside) to verify items are not exposed to precipitation and are covered or in enclosed areas.
- Regular inspection and cleaning of oil/water separators by qualified contractor or facility personnel.
- Inspect stormwater discharge locations and onsite stormwater drainage infrastructure (e.g., catch basins) regularly (for contaminants, soil staining, plugged discharge lines).

MAINTENANCE PROCEDURES

- Repair or replace any leaking/defective containers and replace labels, as necessary.
- Maintain caps and/or covers on containers.
- Maintain aisle space for inspection of products/wastes.
- Routinely clean work spaces.
- Properly collect/dispose of waste.
- Routinely maintain and inspect vehicles and equipment.
- Train employees routinely and when new products enter the facility on proper use, storage, disposal, and safety concerns. MSDS sheets should be reviewed and readily accessible in central facility location.
- Review any Spill Prevention, Control, and Countermeasure (SPCC) Plan. Plans in place for a specific facility for petroleum products.

BMP 4 - HAZARDOUS MATERIAL STORAGE

DESCRIPTION

It is important to properly store hazardous materials to prevent them from contaminating stormwater runoff. Hazardous materials include:

- Cleaning agents: solvents, drain cleaners, and bleach
- Vehicle maintenance fluids: motor oil, gasoline, antifreeze, degreasers, and radiator flush
- Water treatment chemicals
- Paints

Refer to Appendix A for list of typical hazardous materials at specific City Facilities.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities
- All Fleet Vehicle and Equipment Operations

POLLUTION PREVENTION APPROACH

Proper management reduces the likelihood of accidental spills or releases of hazardous materials during storm events. In addition, health and safety conditions at the facility will improve.

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

SUGGESTED BEST MANAGEMENT PRACTICES

Loading/Unloading

- All facilities should have proper procedures in place for loading and/or unloading hazardous materials received, especially areas located near catch basins.
- Do not conduct loading and unloading of exposed hazards during wet weather, whenever possible.
- If feasible, load and unload all materials and equipment in covered areas such as building overhangs at loading docks.
- Load/unload only at designated loading areas.
- Use drip pans underneath hose and pipe connections and other leak-prone spots during liquid transfer operations, and when making and breaking connections.

Storage

- When possible, store indoors.
- Storage of reactive, ignitable, or flammable liquids must comply with the Massachusetts Fire Prevention Regulations for the Storage of Flammable and Combustible Materials (527 CMR 14.03).
- Place containers in a designated area that is paved, free of cracks and gaps, and impervious in order to contain leaks and spills. The area should also be covered.
- Provide secondary containment for hazardous materials and waste placed outdoors.
- Keep containers away from high traffic areas.
- Cover all containers and drums or place under shelter, if stored outdoors.

- MSDSs should be supplied for all stored materials at a specific facility, and in readily accessible location for all facility employees.
- Maintain a log inventory of materials stored at the facility.
- Chemicals should be kept in original labeled containers.
- Containers should not be overfilled.
- Store containers on pallets.
- Properly stack containers and drums.
- Storage areas should be enclosed.
- Minimize storage onsite.
- Keep storage areas clean and organized. Certain materials are collected by the DPW on Household Hazardous Waste Collections conducted several times each year.
- Contractors should be responsible for delivery, storage, and waste disposal practices.
- Containers should not be glass.
- Segregate reactive/incompatible materials (such as chlorine and ammonia).
- Place drip pans under container spouts.
- Install overfill protection on storage tanks/drums.
- Lock storage areas and provide warning signs.

INSPECTION PROCEDURES

- Check loading and unloading equipment regularly for leaks, including valves, pumps, flanges, and connections.
- Look for dust or fumes during loading or unloading operations.
- Inspect storage areas regularly for leaks or spills.
- Conduct routine inspections and check for external corrosion of material containers.
- Check for structural failure, spills and overfills due to operator error, failure of piping system.
- Check for leaks or spills during pumping of liquids or gases from truck or rail car to a storage facility or vice versa.
- Visually inspect new tank or container installations for loose fittings, poor welding, and improper or poorly fitted gaskets.
- Inspect tank foundations, connections, coatings, and tank walls and piping system. Look for corrosion, leaks, cracks, scratches, and other physical damage that may weaken the tank or container system.
- Replace containers that are leaking, corroded, or otherwise deteriorating with ones in good condition. If the liquid chemicals are corrosive, containers made of compatible materials must be used instead of metal drums.
- Label new or secondary containers with the product name and hazards.

MAINTENANCE PROCEDURES

- Conduct regular inspections and make repairs, as necessary. The frequency of repairs will depend on the age of the facility.
- Check loading and unloading equipment regularly for leaks.
- Sweep area regularly with dry broom.

- Conduct major clean-out of loading and unloading area and any sumps prior to October 1 of each year.
- Repair or replace any leaking/defective containers and replace labels, as necessary.
- Maintain caps and/or covers on containers.
- Maintain aisle space for inspection of products/wastes.
- Train employees on proper procedures and when new hazardous materials are used.

BMP 5 - VEHICLE FUELING, MAINTENANCE AND STORAGE

DESCRIPTION

Vehicle repair and service (e.g. parts cleaning and fueling), replacement of fluids (e.g. oil change), and outdoor equipment storage and parking (dripping engines) can impact water quality if stormwater runoff from areas with these activities occurring on them becomes polluted by a variety of contaminants. Spills and leaks that occur during vehicle and equipment fueling can contribute hydrocarbons, oil, and grease, as well as heavy metals to stormwater runoff. It only takes 1 gallon of oil to contaminate 1 million gallons of drinking water.

POLLUTION PREVENTION APPROACH

It is important to properly store and discard vehicle fluids including oil, transmission fluid, antifreeze, and lubricants to prevent surface and groundwater contamination from spills or improper disposal.

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

General Practices

- Store fluids in labeled, plastic or metal container with a lid away from drains and catch basins.
- Place flammables in a fire safe cabinet.
- Place drip pans under leaking vehicles, valves, spigots, and pumps.
- Routinely check for leaking vehicles.
- Do not do any vehicle maintenance near storm drains.
- Vehicle maintenance should be done in covered facility.
- Install inlet catch basin equipped with a small sedimentation basin or grit chamber to remove large particles from stormwater in highly impervious areas.

Fueling

- Ensure that all fueling activities are not conducted near storm drains and dry wells or that procedures are in place to control any spills.
- Fuel storage tanks should be placed on impervious surfaces with no cracks or gaps; secondary containment is recommended.
- Provide barriers such as posts, guard rails, or bollards where tanks are exposed, to prevent collision damage with vehicles.
- Post signs at the fuel dispenser or fuel island warning vehicle owners/operators against "topping off" of vehicle fuel tanks.
- Label drains within the facility boundary, by paint/stencil (or equivalent), to indicate whether they flow to an oil/water separator, directly to the sewer, to a storm drain or into a drywall.

Vehicle Maintenance

TARGETED FACILITIES AND OPERATIONS

- DPW Maintenance Facility and Garage
- Police Maintenance Facility and Garage
- Cemetery Facilities
- Water Department Facility and Garage
- Cambridge Golf Course Garage
- Cambridge Rindge and Latin School Facilities and Auto shop
- Fire Departments, Headquarters, and Maintenance Garage
- Danehy Park Maintenance Garage
- All Fleet Vehicle and Equipment Operations

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Hydrocarbons

- Provide a designated area for vehicle maintenance on an impervious surface.
- Keep equipment clean; do not allow excessive build-up of oil and grease.
- If possible, perform all vehicle fluid removal or changing inside or under cover:
 - Keep a drip pan under the vehicle while you unclip hoses, unscrew filters, or remove other parts.
 - Promptly transfer used fluids to the proper waste or recycling drums. Do not leave drip pans or other open containers lying around.
 - Keep drip pans or containers under vehicles or equipment that might drip during repairs.
 - Do not change motor oil or perform equipment maintenance in non-appropriate areas.
- If temporary work is being conducted outside: Use a tarp, ground cloth, or drip pans beneath the vehicle or equipment to capture all spills and drips.
- If equipment (e.g., radiators, axles) is to be stored outdoors, oil and other fluids should be drained first. This is also applicable to vehicles being stored and not used on a regular basis.

Disposal

- Recycle or properly dispose of fluids.
- Dump full pans into 55-gallon drums.
- Dispose of debris including oil filters, oil cans, rags, and clean-up supplies.
- Do not dump vehicle fluids down storm drains.
- Interior floor drains should discharge to holding tanks or be sealed.

Used Oil

- Recycle used oil.
- Do not mix wastes with used oil.

INSPECTION PROCEDURES

- Identify locations of floor drains and catch basins and know where they discharge to. Floor drains should be connected to the sanitary sewer system and catch basins should be connected to the stormwater drainage system.
- Regularly inspect vehicles and equipment for leaks and repair immediately.
- Inspect fuel storage tank foundations, connections, coatings, and tank walls and piping system. Look for corrosion, leaks, cracks, scratches, and other physical damage that may weaken the tank or container system.
- Inspect fueling areas, catch basin inserts, containment areas, and drip pans on a regular schedule.

MAINTENANCE PROCEDURES

- Sweep the maintenance area on a regular basis, if it is paved, to collect loose particles. Wipe up spills with rags and other absorbent material immediately. Do not hose down the area to a storm drain.

- Clean oil/water separators, sumps, and on-site treatment/recycling units at appropriate intervals.
- Keep ample supplies of spill cleanup materials onsite. Cleanup spills immediately.
- Properly train employees on fueling and handling oil and waste oil.

BMP 6 - VEHICLE WASHING

DESCRIPTION

Wash water from vehicle and equipment cleaning activities performed outdoors or in areas where wash water flows onto the ground can contribute toxic hydrocarbons and other organic compounds, oils and greases, nutrients, phosphates, heavy metals, and suspended solids to stormwater runoff.

POLLUTION PREVENTION APPROACH

If possible, take vehicles to the City's DPW Garage vehicle wash bay or a commercial car wash facility. Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

General

- Use biodegradable, phosphate-free detergents for washing vehicles as appropriate. Products include Simple Green® biodegradable car wash cleaner.
- Mark the area clearly as a wash area.
- Post signs stating that only washing is allowed in wash area and that discharges to the storm drain are prohibited. Facility employees should know where catch basins are.
- Provide a trash container in wash area.
- Those that use the facility to wash vehicles (e.g., students) should be informed of proper washing protocols.

Vehicle and Equipment Cleaning

- To collect wash water as well as prevent stormwater run-on install sumps or drain lines, construct a berm around the designated area, or grade the area.
- Consider washing vehicles and equipment inside the building if washing/cleaning must occur on-site.
- If washing must occur on-site and outdoors:
 - Use designated paved wash areas. Designated wash areas must be well marked with signs indicating where and how washing must be done. This area must be covered or bermed to collect the wash water and graded to direct the wash water to a treatment or disposal facility.
 - Cover the wash area when not in use to prevent contact with rain water.
- Use hoses with nozzles that automatically turn off when left unattended. Use high-pressure, low-volume sprays.
- Perform pressure cleaning and steam cleaning off-site to avoid generating runoff with high pollutant concentrations. If done on-site, no pressure cleaning and steam cleaning should be done in areas designated as protection areas for public water supply.

TARGETED FACILITIES AND OPERATIONS

- DPW Garage
- Cemetery Facilities
- Water Department
- Cambridge Golf Course Garage
- Amigos and King Schools
- Cambridge Rindge and Latin School
- Tobin School
- Fire Departments, Headquarters, and Garage
- Police Maintenance Garage
- Danehy Park Maintenance Garage
- All Fleet Vehicle and Equipment Operations

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics

Disposal

- Filter and recycle wash water if possible.
- If discharging to an oil/water separator, do not use detergents that disperse oil in wash water and make oil/water separators ineffective with oil passing to the sanitary sewer system. It is best to use high pressure water with no cleaning agent. If using a cleaner, it must be a non-emulsifying product such as QOR-110 (“Quick Oil Release”).

INSPECTION PROCEDURES

- Inspect floor drain systems regularly – use only those that discharge to a sanitary sewer.
- Identify the need for cleaning of catch basins, oil/water separators.

MAINTENANCE PROCEDURES

- Maintain a map of on-site storm drain locations to avoid discharges to the storm drainage system.
- Take precautions against excess use of and spillage of detergents.
- Clean vehicles only where wastes can be captured for proper disposal.

BMP 7 - SPILL PREVENTION AND RESPONSE

DESCRIPTION

It is important to have a plan in place in the event a spill should occur so contaminants do not mix with stormwater runoff. A spill prevention and response plan can be effective at reducing the risk of contamination to surface and groundwater contamination—but only with proper personnel training, the availability of cleanup supplies, and when management ensures procedures are followed.

POLLUTION PREVENTION APPROACH

- Create a well thought out and implemented spill prevention and response plan.
- Post a response checklist in any hazardous waste storage area with contact information (including emergency phone numbers), and spill containment procedures.
- Train personnel.
- Regularly update plan, checklists, and contact information.
- Regularly inspect spill potential areas.
- Facilities with aboveground storage tanks (ASTs) and underground storage tanks (USTs) greater than 1,320 gallons and 42,000 gallons must have SPCC Plans in place.

SPILL PREVENTION AND RESPONSE PLAN

An effective Spill Prevention and Response Plan may include one or more of the following:

- Description of the facilities, the address, activities, and materials involved.
- Identification of key spill response personnel and hospital contacts.
- Identification of the potential spill areas or operations prone to spills/leaks.
- Identification of which areas should be or are bermed to contain spills/leaks.
- Facility map identifying the key locations of areas, activities, materials, structural BMPs, etc.
- Material handling procedures and safety measures for each kind of waste.
- Spill response procedures including:
 - Assessment of the site and potential impacts
 - Containment of the material
 - Notification of the proper personnel and evacuation procedures
 - Clean up of the site
 - Disposal of the waste material
 - Proper record keeping procedures
- Plan to protect all storm drains in the event of a spill.
- Descriptions of spill response equipment, including safety and cleanup equipment.

TARGETED FACILITIES AND OPERATIONS

- All City Owned Buildings
- Street and Public Rights-of-Way

TARGETED CONSTITUENTS

- Nutrients
- Metals
- Oil & Grease
- Hydrocarbons
- Organics

REFERENCE

- DPW's SPCC Plan

SUGGESTED BEST MANAGEMENT PRACTICES

Spill/Leak Prevention

- If possible, move material handling indoors, under cover, or away from storm drains or sensitive water bodies.
- Properly label all containers so that the contents are easily identifiable.
- Berm storage areas so that if a spill or leak occurs, the material is contained.
- Cover outside storage areas either with a permanent structure or with a seasonal one such as a tarp so that rain will not come into contact with the materials.
- Check containers (and any containment sumps) often for leaks and spills. Replace containers that are leaking, corroded, or otherwise deteriorating with containers in good condition. Collect all spilled liquids and properly dispose of them.
- Store contain, and transfer liquid materials in such a manner that if the container is ruptured or the contents spilled, they will not discharge, flow or be washed into the storm drainage system, surface waters, or groundwater.
- Place drip pans or absorbent materials beneath all mounted taps and at all potential drip and spill locations during the filling and unloading of containers. Any collected liquids or soiled absorbent materials should be reused/recycled or properly disposed of.
- For City programs that involve material transport, only transport the minimum amount of material needed for the daily activities and transfer materials between containers at a municipal yard where leaks and spills are easier to control.
- If paved, sweep and clean storage areas monthly, do not use water to hose down the area unless all of the water will be collected and disposed of properly (e.g., in an oil/water separator).
- Install a spill control device (such as a tee section) in any catch basins that collect runoff from any storage areas if the materials stored are oil, gas, or other materials that separate from and float on water. This will allow for easier cleanup if a spill occurs.
- If necessary, protect catch basins while conducting field activities so that if a spill occurs, the material will be contained.
- Keep ample supplies of spill cleanup materials including Speedi Dry and absorbent boom pads onsite.

Spill Clean Up

- Small non-hazardous spills:
 - Use a rag, damp cloth or absorbent materials for clean-up of liquids.
 - Use brooms or shovels for the general clean-up of dry materials
 - If water is used, it must be collected and properly disposed of. The wash water cannot be allowed to enter the storm drain.
 - Dispose of any waste materials properly.
 - Clean or dispose of any equipment used to clean up the spill.
- Large non-hazardous spills
 - Use absorbent materials for general clean-up of liquids.

- Use brooms, shovels, or street sweepers for the general clean-up of dry materials.
- If water is used, it must be collected and properly disposed of. The wash water cannot be allowed to enter the storm drain.
- Dispose of any waste materials properly.
- Clean or dispose of any equipment used to clean up the spill properly.
- For hazardous or very large spills, the Fire Department and/or a private cleanup contractor may need to be contacted to assess the situation and conduct the cleanup and disposal of the materials.
- Chemical cleanups of material can be achieved with the use of absorbents, gels, and foams.
- Remove the adsorbent materials promptly and dispose of according to regulations.
- If the spilled material is hazardous, then the used cleanup materials, including rags, are also hazardous and must be sent to a certified laundry facility or disposed of as hazardous waste.

Reporting

- Report any spills immediately to the identified key municipal spill response personnel.
- Report spills in accordance with applicable reporting laws. Spills that pose an immediate threat to human health or the environment must be reported immediately to the City's Health Department at 617-665-3824, DPW at 617-349-4800 and the Fire Department at 911.
- Large spills including those over 10 gallons should be reported to the DPW at 617-349-4800 and the Fire Department at 911.
- Federal regulations require that any oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hour). An oil spill over 10 gallons and spills that reach a surface water, sewer, storm drain, ditch, or culvert leading thereto requires Massachusetts DEP notification at (888)-304-1133.
- After the spill has been contained and cleaned up, a detailed report about the incident should be generated and kept on file. The incident may also be used in briefing staff about proper procedures.

INSPECTION PROCEDURES

- Inspect secondary containment systems and oil/water separators periodically to identify any operational problems.
- Inspect containers for leaks, areas near storm receiver inlets and outlets, and floor drains for indications of spills.

MAINTENANCE PROCEDURES

- Pump out oil water separators as needed.
- Protect drains with oil absorbent materials.
- Clean out receivers on regular schedule.
- Remove spilled salt from salt loading areas, including the City's Salt Shed.

BMP 8 - LAWN AND GROUNDS MAINTENANCE

DESCRIPTION

Nutrient loads generated by suburban lawns as well as municipal properties can be significant, and recent research has shown that lawns produce more surface runoff than previously thought. Pesticide runoff can contribute pollutants that contaminate drinking water supplies and are toxic to both humans and aquatic organisms.

POLLUTION PREVENTION APPROACH

It is important to reduce pesticides, herbicides, fertilizers, and lawn debris from entering surface and ground water supplies by washing and cleaning up with as little water as possible, following good landscape management practices, preventing and cleaning up spills immediately, keeping debris from entering the storm drains, and maintaining the stormwater drainage system.

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

Landscaping Activities

- Do not apply any chemicals (insecticide, herbicide, or fertilizer) directly to surface waters, unless the application is approved and permitted by the Massachusetts DEP.
- Use mulch or other erosion control measures on exposed soils.
- Check irrigation schedules so pesticides will not be washed away and to minimize non-stormwater discharge.
- Place temporarily stockpiled material away from watercourses and drain inlets, and berm or cover stockpiles to prevent material releases to the stormwater drainage system.
- Use hand or mechanical weeding where practical.
- Employ mowing techniques to maintain a healthy lawn and minimize chemical use—no more than 1” of lawn should be removed from each mowing (grasses kept at 2.5” to 3.0” high are more heat resistant than close-cropped grass).
- Keep mower blades sharp and leave clippings in place after mowing.
- Water plants in the early morning.

Fertilizer and Pesticide Management

- Follow manufacturers’ recommendations and label directions.
- Do not apply insecticides within 100 feet of surface waters such as lakes, ponds, wetlands, and streams.
- Use less toxic pesticides that will do the job, whenever possible and use the minimum amount needed. Avoid use of copper-based pesticides if possible.
- Do not use pesticides/fertilizers if rain is expected.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities with lawns and grounds
- Street and Public Rights-of-Way

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Bacteria
- Oil and Grease
- Organics
- Low Dissolved Oxygen

- Do not mix or prepare pesticides/fertilizers for application near storm drains.
- Perform a soil analyses prior to applying fertilizers to determine the appropriate nutrients required for soil conditions.
- Calibrate fertilizer distributors to avoid excessive application.
- Apply pesticides/fertilizers only when wind speeds are low.
- Work fertilizers into the soil rather than dumping or broadcasting them onto the surface.
- Irrigate slowly to prevent runoff and then only as much as is needed.
- Dispose of empty pesticide/fertilizer containers according to the instructions on the container label.
- Use up the pesticides. Rinse containers and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Implement storage requirements for pesticide products with guidance from the local fire department and the Massachusetts Department of Agricultural Resources.
- Provide secondary containment for pesticides.

Debris Removal

- Use yard waste as mulch and topsoil.
- Compost or mulch yard waste.
- Sweep up yard debris instead of hosing down.
- Clean pavement and sidewalk if fertilizer/pesticide is spilled on these surfaces before applying irrigation water.
- Do not leave yard waste in the street or sweep it into storm drains or streams.

INSPECTION PROCEDURES

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring.
- Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.
- Inspect and remove accumulated debris from grounds.
- Routinely monitor lawns to identify problems during their early stages.
- Identify nutrient/water needs of plants.
- Inspect for problems by testing soils.

MAINTENANCE PROCEDURES

- Sweep paved areas regularly to collect loose particles.
- Wipe up spills with rags and other absorbent material immediately.
- Do not hose down the area to a storm drain.
- Keep mower blades sharp.

BMP 9 - STREET AND PARKING LOT SWEEPING

DESCRIPTION

Street and parking lot sweeping includes self-propelled equipment to remove sediment from paved surfaces that can enter storm drains or receiving waters. Sweeping is most effective for removing coarse particles, leaves, and trash. Regularly sweeping reduces catch basin cleaning. The City's Policy is to sweep all streets and parking lots a minimum of twice per year (Spring and Fall) and most streets monthly between April through December (weather permitting) and every square (including Central, Harvard, Porter, and Davis) daily.

POLLUTION PREVENTION APPROACH

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

- Adhere to the City's cleaning schedule – every roadway swept once per month (April through December) and vacuum swept three times per year (Spring, Summer and Fall)
- City parking lots should be checked regularly by Facility personnel and swept when needed, but not less than twice per year (Spring and Fall)
- Any visible sediment should be swept up (including sand/salt mixtures and granular material).
- Control the number of points where vehicles leave the Facilities to allow sweeping to be focused on certain areas in parking lots.
- Sweep up the smallest particles feasible.
- Sweep in pattern to keep spilled material from being pushed into catch basins.
- Before sweeping, manually rake sand from any turf areas on surfaces to be swept.
- Use hand-held tools to assist with mechanical equipment.
- If possible, recycle Fall leaf sweepings by composting.
- The DPW should maintain a log or schedule of sweeping activities they conduct. Information should include date, locations, mileage and volume or mass of sweepings removed.
- Facilities should maintain a log or schedule for their facility parking lots. Information should include volume or mass of sweepings removed, heavily sedimented catch basins, and date of sweeping activities. By recording heavily sedimented areas, prioritizations can be made to sweep these areas or clean catch basins more frequently.

INSPECTION PROCEDURES

- Regularly inspect streets and City-owned parking lots for debris.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities
- Street Rights-of-Way

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

MAINTENANCE PROCEDURES

- Adjust broom frequently to maximize efficiency of sweeping operations.
- After sweeping is finished, properly dispose of sweeper wastes.
- Do not use kick brooms or sweeper attachments that tend to spread dirt.
- When unloading sweeper, make sure there is no dust or sediment release.
- Inspect sweepers to check that the contractor properly maintains and repairs them.
- Manage street sweepings in compliance with current Massachusetts Department of Environmental Protection policies:
<http://www.mass.gov/eea/docs/dep/recycle/laws/stsweep.pdf>

BMP 10 - CATCH BASIN CLEANING

DESCRIPTION

It is important to remove sediments from catch basins that can have a high concentration of pollutants including metals and hydrocarbons. These sediments can clog downstream drainage systems and transport pollutants to nearby water bodies.

POLLUTION PREVENTION APPROACH

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

- Prioritize inspection and maintenance for catch basins located near construction activities
- Ensure that no catch basin at any time will be more than 50 percent full
- Document catch basins with sumps more than 50 percent full during two consecutive inspections/cleanings
- EPA recommends cleaning basins when solids reach one-third the depth from the basin bottom to the invert of the lowest pipe into or out of the basin.
- Target cleaning for early Spring or late Fall.
- Clean manually or with equipment (i.e., bucket loaders).
- Properly dispose of catch basin material or store until contractor picks up cleanings (Massachusetts DEP and EPA requires chemical analysis to determine if substance is hazardous waste).
- Repair damaged catch basins including outlet traps.
- Install hoods if catch basins do not have them.
- Inform employees that catch basins are part of the stormwater drainage system and not the sanitary sewer system.
- The DPW should maintain a log of cleaning activities. Information should include volume of sediment removed and areas with heavily filled basins.
- Facilities or the DPW should maintain a log of cleaning activities on their parking lots. Information should include volume of sediment removed, heavily filled catch basins, and dates cleaned.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities
- Street Rights-of-Way
- Disposal of Removed Solids

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

INSPECTION PROCEDURES

- Inspect catch basins, grates, and ditches at least once per year (best times are before the start and before the end of the rainy season).
- Inspections should be incorporated during routine cleaning, as part of reconstruction contracts, and through requests made by residents or other City departments.
- If illicit discharges are observed or suspected, notify the Cambridge DPW at 617-349-4800.

MAINTENANCE PROCEDURES

- Clean catch basins based on the cleaning schedule or as needed. Catch basins should be checked for sediment levels in sump. Those in areas that accumulate a significant amount of sediment should be cleaned more frequently.
- During catch basin repairs, any hoods missing should be replaced.
- Manage catch basin cleanings (i.e. solid materials such as leaves, sand, twigs) in accordance with current Massachusetts Department of Environmental Protection policies:
<http://www.mass.gov/eea/agencies/massdep/recycle/regulations/management-of-catch-basin-cleanings.html>

BMP 11 - STORMWATER, SANITARY AND WATER LINE MAINTENANCE

DESCRIPTION

Some operation and maintenance activities of public utilities and accidents can result in the discharge of pollutants that can pose a threat to both human health and the quality of receiving waters if they enter the storm drainage system. Sewage incident response and investigation may involve a coordinated effort between staff from a number of different departments/agencies. Storm drainage systems need to be cleaned regularly. Routine cleaning reduces the amount of pollutants, trash, and debris both in the storm drainage system and in receiving waters.

POLLUTION PREVENTION APPROACH

Inspect potential non-stormwater discharge flow paths and clear/cleanup any debris or pollutants found (i.e. remove trash, leaves, sediment, and wipe up liquids, including oil spills).

SUGGESTED BEST MANAGEMENT PRACTICES

Stormwater Drainage Maintenance

- Cleaning the storm drain by flushing is more successful for pipes smaller than 36 inches in diameter.
- A water source is necessary for cleaning. The wastewater must be collected and treated once flushed through the system.
- Depending on the condition of the wastewater, it may or may not be disposed to sanitary sewer systems.
- The efficiency of storm system flushing decreases when the length of sewer line being cleaned exceeds 700 feet.

Sanitary Sewer Maintenance

- Clean sewer lines on a regular basis to remove grease, grit, and other debris that may lead to sewer backups.
- Establish routine maintenance program. Cleaning should be conducted at an established minimum frequency and more frequently for problem areas such as restaurants that are identified.
- Cleaning activities may require removal of tree roots and other identified obstructions.
- During routine maintenance and inspection note the condition of sanitary sewer structures and identify areas that need repair or maintenance. Items to note may include the following:
 - Cracked/deteriorating pipes
 - Leaking joints/seals at manhole
 - Frequent line plugs
 - Line generally flows at or near capacity
 - Suspected infiltration or exfiltration
- Prioritize repairs based on the nature and severity of the problem. Immediate clearing of blockage or repair is required where an overflow is currently occurring or for urgent problems that may cause an

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities
- Street Rights-of-Way

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

imminent overflow (e.g. pump station failures, sewer line ruptures, sewer line blockages). These repairs may be temporary until scheduled or capital improvements can be completed.

- Review previous sewer maintenance records to help identify “hot spots” or areas with frequent maintenance problems and locations of potential system failure.
- Adhere to the permit requirements in the City’s National Pollutant Discharge Elimination System permit for Combined Sewer Overflows (CSO), the Variance for CSO Discharges and implement the Nine Minimum Control Measures.

Spills and Overflows

- Identify, track and remedy sanitary sewer overflow discharges. Identify dry weather infiltration and inflow first. Wet weather overflow connections are very difficult to locate.
- The City’s 9 permitted combined sewer overflows to the Charles River and the Alewife Brook should be checked monthly and monitored more frequently during wet weather conditions.
- Locate wet weather overflows and leaking sanitary sewers using conventional source identification techniques such as monitoring and field screening. Techniques used to identify other illicit connection sources can also be used for sewer system evaluation surveys.
- Implement community awareness programs for monitoring sanitary sewer wet weather overflows. A citizen’s hotline for reporting observed overflow conditions should be established to supplement field screening efforts.
- Establish lead department/agency responsible for spill response and containment. Provide coordination within departments.
- When a spill, leak, and/or overflow occurs and when disinfecting a sewage contaminated area, take every effort to ensure that the sewage, disinfectant and/or sewage treated with the disinfectant is not discharged to the storm drainage system or receiving waters. Methods may include:
 - Blocking storm drain inlets and catch basins.
 - Containing and diverting sewage and disinfectant away from open channels and other storm drain fixtures (using sandbags, inflatable dams, etc.).
 - Removing the material with vacuum equipment.
- Record required information at the spill site.
- Perform field tests as necessary to determine the source of the spill.
- Develop notification procedures regarding spill reporting.

Septic Systems

- Document on a map the City’s septic system.

Planned Water Line Maintenance

- Discharge to a sanitary sewer system with approval.
- Discharge to the storm drainage rain system using applicable pollution control measures. (Only available to clean water discharges such as water main/ water storage tank/water hydrant flushing).

- If water is discharged to a storm drain, control measures must be put in place to control potential pollutants (i.e. sediment, chlorine, etc.).

Examples of some storm drain protection options include:

- Silt fence – appropriate where the inlet drains a relatively flat area.
- Gravel and wire mesh sediment filter – Appropriate where concentrated flows are expected.
- Wooden weir and fabric – use at curb inlets where a compact installation is desired.
- Prior to discharge, inspect discharge flow path and clear/cleanup any debris or pollutants found (i.e. remove trash, leaves, sediment, and wipe up liquids, including oil spills).
- General Design considerations for inlet protection devices include the following:
 - The device should be constructed such that cleaning and disposal of trapped sediment is made easy, while minimizing interference with discharge activities.
 - Devices should be constructed so that any standing water resulting from the discharge will not cause excessive inconvenience or flooding/damage to adjacent land or structures.
- The effectiveness of control devices must be monitored during the discharge period and any necessary repairs or modifications made.

Unplanned Water Line Maintenance

- Stop the discharge as quickly as possible.
- Minor discharges would include direction from the DPW. In most cases, catch basins are protected with filter fabric.
- Major discharges would require the MWRA or Massachusetts DEP to be contacted.
- Inspect flow path of the discharged water:
 - Identify erodible areas which may need to be repaired or protected during subsequent repairs or corrective actions.
 - Identify the potential for pollutants to be washed into the waterway.
- If repairs or corrective action will cause additional discharges of water, select the appropriate procedures for erosion control, chlorine residual, turbidity, and chemical additives. Prevent potential pollutants from entering the flow path.

INSPECTION PROCEDURES

- Inspect for root infiltration. Tree roots are a major cause of backups.
- Inspect for water inflow/infiltration. Rainwater entering the sewer pipe can contribute to sanitary sewer overflows.
- Inspect for solids. Typical solids that buildup in the pipe and cause backups are grease, dirt, bones, tampons, paper towels, diapers, broken dishware, garbage, concrete, and debris.
- Inspect for structural defects in pipes and manholes - Sags in the line, cracks, holes, protruding laterals, misaligned pipe, and offset joints are all possible causes of backups.

MAINTENANCE PROCEDURES

- Repair structural defects in pipes and manholes immediately.
- Refurbish portions of the utility lines periodically.
- Repairs should adhere to the facility prioritization:
 - High Priority: public health risk, major structural problems, collapsed catch basins with road plates, and illicit connections.
 - Medium Priority: Main pipe lines with significant structural problems, non-functioning catch basins, and street pavements failures caused by minor pipe defects.
 - Low Priority: Installation of non-critical structures and service laterals.
- All maintenance activities should be documented through the City's current work order system.

BMP 12 - PET WASTE, WATERFOWL, AND LITTER MANAGEMENT

DESCRIPTION

Pet droppings have been found to be important contributors of pollution in estuaries and bays where there are high populations of dogs. It has been estimated that for a small bay watershed (up to 20 square miles), 2 to 3 days of droppings from a population of 100 dogs contribute enough bacteria, nitrogen, and phosphorus to temporarily close a bay to swimming and shell fishing. The Cambridge Municipal Code, Title 6 Animals, Chapter 6.04 (Section 6.04.060 Dogs – Removal of Waste Required) clearly states that individuals must pick up their pet's waste. Waterfowl waste not only raises bacteria concentrations to levels unsafe for water contact recreation, but it is also a source of nutrients that allow excessive growth of algae and rooted aquatic plants in receiving waters. Feeding of waterfowl by streams and ponds encourages waterfowl congregation in those areas.

POLLUTION PREVENTION APPROACH

Provide pet awareness and education programs with the following elements:

- Encouraging residents to clean up after their pets and to properly dispose of such wastes that may be deposited in their yards, streets, and parks.
- Posting signs in local parks describing the problem and urging cleanup and proper disposal of pet wastes.
- Discourage feeding of waterfowl at local parks, particularly where adjacent to waterways. Produce educational material and/or post signage as appropriate.

SUGGESTED BEST MANAGEMENT PRACTICES

- Put waste in the trash.
- Restrict dog access to areas of parks where swales, steep slopes and streams are.
- Provide vegetated buffers of prescribed widths between dog parks and waterways, swales, storm drain inlets, gulleys and steep slopes.
- Add pooper scooper stations with free sanitary "pick-up" bags and proper receptacles in all City-Owned parks, playgrounds, and reservations where dogs are allowed.
- Incorporate public outreach elements like signage and informational brochures into and around parks.

INSPECTION PROCEDURES

- Routinely inspect common dog walking areas for pet waste.

MAINTENANCE PROCEDURES

- Remove and properly dispose of pet waste.
- Enforce Cambridge Municipal Code: Section 6.04.060 Dogs – Removal of Waste Required.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Parks, Playgrounds, and Reservations
- Sidewalk and Street Rights-of-Way

TARGETED CONSTITUENTS

- Nutrients
- Organics
- Low Dissolved Oxygen

BMP 13 - SIDEWALK CLEANING AND REPAIR

DESCRIPTION

Pollutants on sidewalks and other pedestrian traffic areas and plazas are typically due to littering and vehicle use.

POLLUTION PREVENTION APPROACH

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

Sidewalk Cleaning

- Post “No Littering” signs and enforce anti-litter laws.
- Provide litter receptacles in busy, high pedestrian traffic areas of the community, at recreational facilities, and at community events.
- Cover litter receptacles and clean out frequently to prevent leaking/spillage or overflow.
- Regularly broom (dry) sweep sidewalk, plaza, and parking lot areas to minimize cleaning with water.
- Dry cleanup first (sweep, collect, and dispose of debris and trash) when cleaning sidewalks or plazas, then wash with or without soap.
- Use biodegradable soaps and detergents to wash down sidewalks.
- Block the entrance to the storm drainage system by using filter fabric to block catch basins. Discharge wash water to landscaping or collect water and pump to a tank or discharge to sanitary sewer if allowed.
- Use deicing salts only when snow or ice is present (not as a preventive measure) and apply sparingly. Shoveling of snow is always preferred to dumping excessive amounts of deicing materials in an effort to avoid shoveling. If deicing salts are used, the residues and remaining granules should be swept up when the snow and ice has melted and reused or disposed of in your garbage. Un-shoveled or icy sidewalks can be reported to the DPW by calling (617) 349-4800, through the Snow Center website www.cambridgema.gov/snow or report through the Commonwealth Connect app at CambridgeMA.gov/311.

Sidewalk Repair

- Refer to “Standard Specification from Street Excavations and Construction (Section II, 2F).
- Schedule surface removal activities for dry weather if possible.
- Avoid creating excess dust when breaking asphalt or concrete.
- Take measures to protect nearby storm drain inlets prior to breaking up asphalt or concrete (e.g. filter fabric or sand bags around inlets).
- Clean afterwards by sweeping up as much material as possible.
- Designate an area for cleanup and proper disposal of excess materials.
- Remove and recycle as much of the broken pavement as possible to avoid contact with rainfall and stormwater runoff.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities
- Sidewalk and Street Rights-of-Way

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics

REFERENCE

- “Standard Specifications for Street Excavations and Construction”, Section II, 2F)
- DPW’s “Snow: Our Winter Challenge” brochure

- When making saw cuts in pavement, use as little water as possible. Cover each storm drain inlet completely with filter fabric during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site.
- Always dry sweep first to clean up tracked dirt. Use a street sweeper or vacuum truck. Do not dump vacuumed liquid in storm drains. Once dry sweeping is complete, the area may be hosed down if needed. Wash water should be directed to the sanitary sewer as allowed by the DPW.

INSPECTION PROCEDURES

- Inspect sidewalks regularly for trash items and stains.

MAINTENANCE PROCEDURES

- Sweep sidewalks at least as necessary to collect loose dirt and debris rather than pushing it into the street or gutter or hosing it down. Collected materials must be disposed of as regular garbage.
- Conduct spot stain removal instead of washing entire sidewalk.

BMP 14 - GRAFFITI CLEANING

DESCRIPTION

Graffiti cleaning often results in the discharge of wastewater to the storm drainage system unless the equipment operator takes steps to collect and dispose of it legally. Discharge of pressure washing wastewater to the storm drainage system is prohibited because it contains pollutants from the cleaning compounds used and/or from the objects or surfaces being cleaned.

POLLUTION PREVENTION APPROACH

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

- Avoid graffiti abatement activities during rain events.
- When graffiti is removed by painting over, ensure that the catch basin inlets are protected.
- Direct runoff from sand blasting and hot water pressure washing (with no cleaning agents) into a dirt or landscaped area after treating with an appropriate filtering device.
- Use hot water for pressure washing. If using a biodegradable soap, plug nearby storm drain inlets and vacuum/pump wash water to the sanitary sewer if a graffiti abatement method generates wash water containing a cleaning compound (such as high pressure washing with a cleaning compound).
- Ensure that a non-hazardous cleaning compound is used or dispose as hazardous waste, as appropriate.

INSPECTION PROCEDURES

- Regularly inspect facilities for graffiti.

MAINTENANCE PROCEDURES

- Remove graffiti as necessary, according to the suggested Best Management Practices.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

BMP 15 - MOSQUITO CONTROL

DESCRIPTION

Standing water can facilitate the reproduction of mosquitos that spread diseases such as eastern equine encephalitis (EEE) and West Nile virus.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities

POLLUTION PREVENTION APPROACH

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

TARGETED CONSTITUENTS

Identify ways to improve locations with standing water to reduce the need for additional larvicide applications

- Sediment
- Stagnant water

SUGGESTED BEST MANAGEMENT PRACTICES

- Adhere to manufacturer's application standard operating procedures
- Design new catch basins to limit the potential for standing water and mosquito reproduction.
- Minimize installation of BMPs that will collect stormwater for only brief periods then stagnate until the next event.
- Maintain and cleanout sediment traps and basins and all drainage structures to allow for positive water drainage

INSPECTION PROCEDURES

- Inspecting stormwater treatment structures for standing water and mosquito breeding locations.
- Identify additional maintenance needs to prevent water pooling and promote positive water drainage

MAINTENANCE PROCEDURES

- Eliminate unnecessary locations with standing water in stormwater treatment structures.
- Complete routine maintenance to ensure excess vegetation or sediment are not impeding water drainage.

BMP 16 - WASTE MANAGEMENT

DESCRIPTION

Improper storage and handling of solid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants to enter stormwater runoff.

POLLUTION PREVENTION APPROACH

The discharge of pollutants to stormwater from waste handling and disposal can be prevented and reduced by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction, re-use, and recycling; and preventing run-on and runoff.

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

General

- Cover storage containers with leak proof lids or some other means. If waste is not in containers, cover all waste piles (plastic tarps are acceptable coverage) and prevent stormwater run-on and runoff with a berm. The waste containers or piles must be covered except when in use.
- Use drip pans or absorbent materials whenever grease containers are emptied by vacuum trucks or other means. Grease cannot be left on the ground. Collected grease must be properly disposed of as garbage.
- Sweep and clean the storage area regularly. If it is paved, do not hose down the area to a storm drain.
- Dispose of rinse and wash water from cleaning waste containers into a sanitary sewer if allowed by the local sewer authority. Do not discharge wash water to the street or storm drain.
- Transfer waste from damaged containers into safe containers.
- Take special care when loading or unloading wastes to minimize losses.

Controlling Litter

- Post “No Littering” signs and enforce anti-litter laws.
- Provide a sufficient number of litter receptacles for the facility.
- Clean out and cover litter receptacles frequently to prevent spillage.

Waste Collection

- Keep waste collection areas clean before contractor picks up.
- Inspect solid waste containers for structural damage or leaks regularly. Repair or replace damaged containers, as necessary.
- Secure solid waste containers; containers must be closed tightly when not in use.
- Place waste containers under cover if possible.
- Do not fill waste containers with washout water or any other liquid.
- Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

lamps, pesticides, etc. may not be disposed of in solid waste containers (see chemical/ hazardous waste collection section below).

- Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.

Good Housekeeping

- Use the entire product before disposing of the container.
- Keep the waste management area clean at all times by sweeping and cleaning up spills immediately.
- Use dry methods when possible (e.g. sweeping, use of absorbents) when cleaning around restaurant/food handling dumpster areas. If water must be used after sweeping/using absorbents, collect water and discharge through grease interceptor to the sewer.
- Stencil storm drains on the facility's property with prohibitive message regarding waste disposal.

Chemical/Hazardous Wastes

- Select designated hazardous waste collection areas on-site.
- Store hazardous materials and wastes in covered containers protected from vandalism, and in compliance with fire and hazardous waste codes.
- Place hazardous waste containers in secondary containment.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.

Run-on/Runoff Prevention

- Prevent stormwater run-on from entering the waste management area by enclosing the area or building a berm around the area.
- Prevent the waste materials from directly contacting rain.
- Cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropylene or Hypalon.
- Cover the area with a permanent roof if feasible.
- Cover dumpsters to prevent rain from washing waste out of holes or cracks in the bottom of the dumpster.
- Move the activity indoor after ensuring all safety concerns such as fire hazard and ventilation are addressed.

INSPECTION PROCEDURES

- Inspect and replace faulty pumps or hoses regularly to minimize the potential of releases and spills.
- Check waste management areas for leaking containers or spills.
- Repair leaking equipment including valves, lines, seals, or pumps promptly.

MAINTENANCE PROCEDURES

- Maintain equipment for material tracking program.

BMP 17 - BUILDING OPERATIONS

DESCRIPTION

Typical building operations include cleaning operations such as outside pressure washing of buildup and repairs.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities

POLLUTION PREVENTION APPROACH

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

Pressure Washing of Buildings, Rooftops, and Other Large Objects

- In situations where soaps or detergents are used and the surrounding area is paved, pressure washers must use a waste/water collection device that enables collection of wash water and associated solids. A sump pump, wet vacuum or similarly effective device must be used to collect the runoff and loose materials. The collected runoff and solids must be disposed of properly.
- If soaps or detergents are not used, and the surrounding area is paved, wash water runoff does not have to be collected but must be screened. Pressure washers must use filter fabric or some other type of screen on the ground and/or in the catch basin to trap the particles in wash water runoff.
- If you are pressure washing on a grassed area (with or without soap), runoff must be dispersed as sheet flow as much as possible, rather than as a concentrated stream. The wash runoff must remain on the grass and not drain to pavement. Ensure that this practice does not kill grass.

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

Building Repair, Remodeling, and Construction

- Do not dump any toxic substance or liquid waste on the pavement, the ground, or toward a storm drain.
- Use ground or drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of collected material daily.
- Use a ground cloth or oversized tub for activities such as paint mixing and tool cleaning.
- Clean paint brushes and tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers that can be dumped into a sanitary sewer drain. Brushes and tools covered with non-water-based paints, finishes, or other materials must be cleaned in a manner that enables collection of used solvents (e.g., paint thinner, turpentine, etc.) for recycling or proper disposal. Use a storm drain cover, filter fabric, or similarly effective runoff control mechanism if dust, grit, wash water, or other pollutants may escape the work area and enter a catch basin. The containment device(s) must be in place at the beginning of the work day, and accumulated dirty runoff and solids must be collected and disposed of before removing the containment device(s) at the end of the work day.

- If you need to de-water an excavation site, you may need to filter the water before discharging to a catch basin or off-site. In which case you should direct the water through hay bales and filter fabric or use other sediment filters or traps.
- Store toxic material under cover with secondary containment during precipitation events and when not in use. A cover would include tarps or other temporary cover material.

INSPECTION PROCEDURES

- Sweep paved areas regularly to collect loose particles and wipe up spills with rags and other absorbent material immediately; do not hose down the area to a storm drain.

BMP 18 - OIL/WATER SEPARATORS

DESCRIPTION

Oil/Water separators/interceptors are important to prevent gasoline, oil, or sand from getting into the drainage systems. In the following places they are always required

- Repair garages where motor vehicles are serviced and repaired, and where floor drainage is provided
- Commercial motor vehicle washing facilities
- Gasoline Stations with grease racks, grease pits or wash racks
- Facilities which have oily and/or flammable waste as a result of manufacturing, storage, repair, or testing
- Public storage garages with floor drainage
- Any place where solid, oil, gasoline or other volatile liquids can enter the drainage system

POLLUTION PREVENTION APPROACH

Implement applicable suggested Best Management Practices to reduce the influx of pollutants to the stormwater drainage system.

SUGGESTED BEST MANAGEMENT PRACTICES

- DPW recommends sweeping garage floor frequently, depending on use.
- Target cleaning for early Spring or late Fall.
- Use oil absorbent materials on any liquid spills, such as oil or hydraulic fluid leaks.
- The facility manager should maintain a log of cleaning activities (including the Cambridge Work Management System). Information should include frequency of cleanings.
- It is important to remove sediments from garage floors that can have a high concentration of pollutants including metals and hydrocarbons. These sediments can clog downstream drainage systems and transport pollutants to nearby water bodies

INSPECTION PROCEDURES

- Oil/Water separators/interceptors should be inspected twice per year (best times are before the start and before the end of the rainy season).
- Oil/Water separators/interceptors should be inspected quarterly at the following facilities:
 - Water Department
 - DPW Garage
 - Fire Stations and maintenance facility
 - Police Department garage and maintenance facility
 - Municipal parking garages

MAINTENANCE PROCEDURES

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities
- Street Rights-of-Way
- Disposal of Removed Solids

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

- Clean oil/water separators once per year at a minimum or when:
 - Sludge accumulates to 25% of the wetted height of the separator compartment; or
 - Oil accumulates to 5% of the wetted height of the separator compartment; or
 - 75% of the retention capacity is filled.
- Drains and grates should be free of debris or sediments.
- Dipping pans should be used under vehicles or spigots.
- Spill absorbent material should be ready for use.
- Floors should be kept clean and spill materials should be cleaned up in a timely manner.

BMP 19 - GREEN ROOFS

DESCRIPTION

Green roofs allow for runoff to be filtered through a soil medium that removes different pollutants before the runoff enters the stormwater drainage system. The green roof area needs to be maintained fairly frequently for the first year and then annually after that. The frequency of inspection also depends on the type of green roof that is installed.

POLLUTION PREVENTION APPROACH

The suggested Best Management Practices should be used to reduce the influx of pollutants into the storm water drainage system and increase the longevity of the green roof.

SUGGESTED BEST MANAGEMENT PRACTICES

- It is recommended that the area be cleaned extensively once in the early spring and once in the late fall.
- The area should be cleaned with hand tools, rakes, and shovels.
- Facilities and personal in-charge of the bio-retention area should keep inspection logs and cleaning activity logs.
- Frequency of inspection and maintenance should be based on type of green roof:

a) Extensive <3 in. Low Nutrition Substrate

- Drainage outlets and inspection chambers cleared of vegetation, as with any roof.
- Ensure outlets and shingle perimeters clear of dead and live plants.
- Generally, they are allowed to develop into dry meadows.

b) Semi Extensive – 3 in. to 6 in. low to medium nutrition substrate

- Drainage outlets and inspection chambers cleared of vegetation.
- Ensure outlets and shingle perimeters clear of dead and live plants.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned Facilities

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Metals
- Organics
- Low Dissolved Oxygen

REFERENCE

- “Green Roof Guide” United Kingdom
- “Green Roof Standards” City of Toronto
- ASTM Standards for Green Roofs

- Removal of undesirable vegetation 6 monthly.

c) Intensive – 6 in. + medium nutrition substrates and top soils

- Drainage outlets and inspection chambers cleared of vegetation.
- Ensure outlets and shingle perimeters clear of dead and live plants.
- Intensive care of lawns, hedges etc.
- Replacement of failed plants exceeding 5% of plants installed.
- Replenishment of any areas of settled substrate.

d) Bio-diverse - very low to low nutrition

- Drainage outlets and inspection chambers cleared of vegetation.
- Ensure outlets and shingle perimeters clear of dead and live plants.
- Low vegetation is common and none is general undesirable.

INSPECTION PROCEDURES

- Green roof areas should be inspected after every rainfall over a half inch of rainfall for the first year.
- Inspection of the green roof should be daily for the first month to ensure the area is taking properly.
- The green roof should be inspected twice a month during the growing season and once in the beginning of spring and at the end of fall.

MAINTENANCE PROCEDURES

Green roofs should be kept free of debris and weeds to ensure a properly working infiltration and stormwater management area. Routine maintenance should be done year-round.

After planting:

- The area should be watered daily for two weeks unless significant rainfall has occurred
- Inspect the green roof area for any signs of erosion.
- Ensure that the irrigation system is operational, if necessary.

After first rainfall:

- The green roof area should be free of standing within 12-hours of rainfall. No standing water should be visible within the green roof area. If the area has not drained continue to monitor, soil remediation or an improved under drain system may be needed.
- Inspect all inlets and outlet structure to ensure that runoff has drained properly with the roof.

One month of planting:

- Inspect all plants to ensure that they are free of pest and diseases; do not use any toxic pesticide or other toxic methods to remove pest and diseases. The toxic substance will enter the ground and also the storm sewer system.
- Make repairs to all areas in and around the green roof area that appear to be worn down.
- Remove any weeds from the area, ensure that all root system from the weeds have been destroyed. Do not use any toxic substances to remove weeds.

The following seasons:

- If plants are showing signs of pest, disease or are growing poorly, remove the plant(s) and replace. Inspect the plants surrounding the area to ensure that there is not a greater problem.
- During times of extended drought look for features of stress, wilting, spotted brown leaves, loss of leaves, poor plant health, etc. except when bio-diverse system is used.
- Area should be water, when needed, in the early morning when maximum absorption.
- Prune excess growth annually or more often. Trimmed material maybe recycled in with the mulch.
- Weed the area regularly; however, the area should not be mowed.
- Remove plant material away from fire walls, drainage outlets and inlets and other mechanical equipment.

BMP 20 - PERVIOUS PAVEMENT

DESCRIPTION

Pervious pavement areas allow for runoff to be filtered through a soil medium that removes different pollutants before the runoff enters the stormwater drainage system. The pervious pavement facility needs to be maintained on a yearly basis. The maintenance is relatively simple and can be done in a short amount of time depending on the size of the area.

POLLUTION PREVENTION APPROACH

The suggested Best Management Practices should be used to reduce the influx of pollutants into the storm water drainage system and increase the longevity of the pervious pavement area.

SUGGESTED BEST MANAGEMENT PRACTICES

- It is recommended that the area be cleaned once in the early spring and once in the late fall.
- The area should be cleaned with a vacuum street sweeper and the surrounding area should be cleaned of all debris.
- Facilities and personal in-charge of the pervious pavement area should keep inspection logs and cleaning activity logs.
- The area should not have any soil stockpiles, mulch, or other fine materials stored near or on top of the pavement.

INSPECTION PROCEDURES

- Pervious Pavement areas should be inspected after every rainfall over a half inch of rainfall for the first year.
- Inspection of the pervious pavement area should be monthly for the first six months to ensure the pavement and sub-bases were properly constructed.
- The pervious pavement area should be inspected at the end of the winter months to ensure that excessive winter treatment chemicals did not build-up in the pavement cross section.

MAINTENANCE PROCEDURES

TARGETED FACILITIES AND OPERATIONS

- City parking lots
- Street Rights-of-Way

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

REFERENCE

- Stormwater PA - Pervious Pavement
- Stormwater Solutions

Pervious pavement areas should be kept clean through-out the year. A vacuum sweeper is necessary to remove any sediments or other debris that has fallen in the voids of the pavement. During winter months, the pervious pavement section should be salted only. Sand and any other anti-skid product should not be placed on the pervious pavement or any area that drains to the pervious pavement. If at any time standing water is observed on the pervious pavement the area should be excavated and a pavement and below soils should be viewed for excessive sediment build-up.

BMP 21 - BIO RETENTION FACILITIES

DESCRIPTION

Bio-retention areas allow for runoff to be filtered through a soil medium that removes different pollutants before the runoff enters the stormwater drainage system. The Bio-retention facility needs to be maintained monthly during the growing season and inspected for erosion and debris buildup.

POLLUTION PREVENTION APPROACH

The suggested Best Management Practices should be used to reduce the influx of pollutants into the storm water drainage system and increase the longevity of the bio-retention basin

SUGGESTED BEST MANAGEMENT PRACTICES

- It is recommended that the area be cleaned once in the early spring and once in the late fall.
- The area should be cleaned with hand tools, rakes, shovels, and light construction equipment. Vehicles should not be driven on the bio-retention area.
- All damage should be repaired and mulch areas that are exposed should be fixed.
- Facilities and personal in-charge of the bio-retention area should keep inspectional logs and cleaning activity logs.

INSPECTION PROCEDURES

- Bio-retention areas should be inspected after every rainfall over a half inch of rainfall for the first year.
- Inspection of the bio-retention area should be daily for the first month to ensure the area is taking properly.
- The bio-retention area should be inspected once a month during the growing season and once in the beginning of spring and at the end of fall.

MAINTENANCE PROCEDURES

Bio-retention areas should be kept free of debris and weeds to ensure a properly working infiltration and stormwater management area. Routine maintenance should be done year-round and does not require much effort if area is well kept.

TARGETED FACILITIES AND OPERATIONS

- All City-Owned property
- City parking lots
- Street Rights-of-Way

TARGETED CONSTITUENTS

- Sediment
- Nutrients
- Trash
- Metals
- Oil & Grease
- Organics
- Low Dissolved Oxygen

REFERENCE

- University of Minnesota- Rain gardens and Maintenance
- “Vermont Rain Garden Manual”
- Fairfax County “Public Facility Manual”

After planting:

- The area should be watered daily for two weeks unless significant rainfall has occurred
- Inspect the bio-retention area for any signs of erosion.
- Re-mulch any area where bare soil has become exposed or mulch layer has been significantly reduced.
- If necessary, use stones to stabilize drainage paths within the bio-retention area. If it is possible use a wetland grass mixture if the area will hold the seeds

After first rainfall:

- The bio-retention area should be free of standing within 72-hours of rainfall. No standing water should be visible within the bio-retention area. If the area has not drained continue to monitor, soil remediation or an improved under drain system may be needed.
- Ensure that mulch has not moved and settled in clumps.
- If applicable, inspect all inlets and outlet structure to ensure that runoff has drained properly with the basin.

One month of planting:

- Inspect all plants to ensure that they are free of pest and diseases; do not use any toxic pesticide or other toxic methods to remove pest and diseases. The toxic substance will enter the ground and also the storm sewer system.
- Make repairs to all areas in and around the bio-retention area that appear to be worn down.
- Add mulch to areas that are bare or insufficient mulch coverage exist.
- Remove any weeds from the area, ensure that all root system from the weeds have been destroyed. Do not use any toxic substances to remove weeds.

The following seasons:

- Every 6 months or in spring and fall, whichever comes first, add 1" of mulch.
- Once every 2 to 3 years, in the spring, apply a new 3" layer of mulch in the entire bio-retention garden.
- If plants are showing signs of pest, disease or are growing poorly, remove the plant(s) and replace. Inspect the plants surrounding the area to ensure that there is not a greater problem.

- During times of extended drought look for features of stress, wilting, spotted brown leaves, loss of leaves, poor plant health, etc.)
- Area should be water, when needed, in the early morning when maximum absorption.
- Prune excess growth annually or more often. Trimmed material maybe recycled in with the mulch.
- Weed the area regularly; however, the area should not be mowed.

APPENDIX B: SPILL DOCUMENTATION FORM

Significant Spills, Leaks or Other Releases

Instructions:

- Include the descriptions and dates of any incidences of significant spills, leaks, or other releases that resulted in discharges of pollutants to waters of the U.S., through stormwater or otherwise; the circumstances leading to the release and actions taken in response to the release; and measures taken to prevent the recurrence of such releases .
- Provide information, as shown below, for each incident, and attach additional documentation (e.g., photos, spill cleanup records) as necessary. Repeat as necessary by copying and pasting the fields below.

Stormwater Pollution Prevention Plan
Spill Documentation Form

Incident Number	Date/Time of incident	Location of incident	Description of incident – Including approximate volume released	Circumstances leading to release	Actions taken in response to release – Including who was contacted	Measures taken to prevent recurrence

Stormwater Pollution Prevention Plan
Spill Documentation Form

Incident Number	Date/Time of incident	Location of incident	Description of incident – Including approximate volume released	Circumstances leading to release	Actions taken in response to release – Including who was contacted	Measures taken to prevent recurrence

Stormwater Pollution Prevention Plan
Spill Documentation Form

Incident Number	Date/Time of incident	Location of incident	Description of incident – Including approximate volume released	Circumstances leading to release	Actions taken in response to release – Including who was contacted	Measures taken to prevent recurrence

Stormwater Pollution Prevention Plan
Spill Documentation Form

Incident Number	Date/Time of incident	Location of incident	Description of incident – Including approximate volume released	Circumstances leading to release	Actions taken in response to release – Including who was contacted	Measures taken to prevent recurrence

*Stormwater Pollution Prevention Plan
Spill Documentation Form*

Incident Number	Date/Time of incident	Location of incident	Description of incident – Including approximate volume released	Circumstances leading to release	Actions taken in response to release – Including who was contacted	Measures taken to prevent recurrence

APPENDIX C: EMPLOYEE TRAINING RECORDS



STORMWATER POLLUTION AND PREVENTION PLAN TRAINING

SIGN-IN SHEET

INSTRUCTOR'S NAME:

INSTRUCTOR'S AFFILIATION:

DATE:

TIME:

LOCATION OF TRAINING:

NAME (PRINT)	DEPARTMENT	FACILITY

STORMWATER POLLUTION AND PREVENTION PLAN TRAINING

SIGN-IN SHEET

[illegible]

APPENDIX D: WATER DEPARTMENT FACILITY INSPECTION FORM AND SITE PLAN

Site Inspection Reports

Instructions:

- Include in your records copies of all routine facility inspection reports completed for the facility.
- The sample inspection report is consistent with the requirements in the 2016 Massachusetts MS4 Permit relating to site inspections. **If MassDEP provides you with an inspection report, use that form.**

Using the Sample Site Inspection Report

- This inspection report is designed to be customized according to the specific control measures and activities at your facility. For ease of use, you should take a copy of your site plan and number all of the stormwater control measures and areas of industrial activity that will be inspected. A brief description of the control measures and areas that were inspected should then be listed in the site-specific section of the inspection report.
- You can complete the items in the “General Information” section that will remain constant, such as the facility name and inspector (if you only use one inspector). Print out multiple copies of this customized inspection report to use during your inspections.
- When conducting the inspection, walk the site by following your site map and numbered control measures/areas of industrial activity to be inspected. Also note whether the “Areas of Materials or Activities exposed to stormwater” have been addressed (customize this list according to the conditions at your facility). Note any required corrective actions and the date and responsible person for the correction.

Stormwater Site Inspection Form

General Information			
Facility Name			
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Weather Information			
Weather at time of this inspection? <input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snow <input type="checkbox"/> High Winds <input type="checkbox"/> Other: Temperature: F			
Have any previously unidentified discharges of pollutants occurred since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: 			
Are there any discharges occurring at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: 			

Areas of materials or activities exposed to stormwater at the Water Department Garage

Area, activities, and equipment that should be assessed during quarterly inspections.

	Area/Activity	Location on Site Plan	Inspected?	Controls Adequate (appropriate, effective, and operating)?	Corrective Action Needed and Notes	Person Responsible for Correction	Corrective Action Taken (description and date)
1	Chemical Delivery Area	A	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
2	Floor Drains	A	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
3	Vehicle Maintenance Area	B	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
4	Equipment storage areas	B	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
5	Floor Drains	B	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
6	Oil Water Separator	B	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
7	Vehicle Wash Bay	B	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
8	Waste Oil	B	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			

	Area/Activity	Location on Site Plan	Inspected?	Controls Adequate (appropriate, effective, and operating)?	Corrective Action Needed and Notes	Person Responsible for Correction	Corrective Action Taken (description and date)
9	Catch Basins	C	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
10	Stockpile	D	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
11	Liquid Oxygen Tanks	E	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
12	Stockpile	F	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
13	Vehicle Storage Area	G	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			
14	Floor Drains	G	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			

Non-Compliance

Describe any incidents of non-compliance observed and not described above:

Additional Control Measures

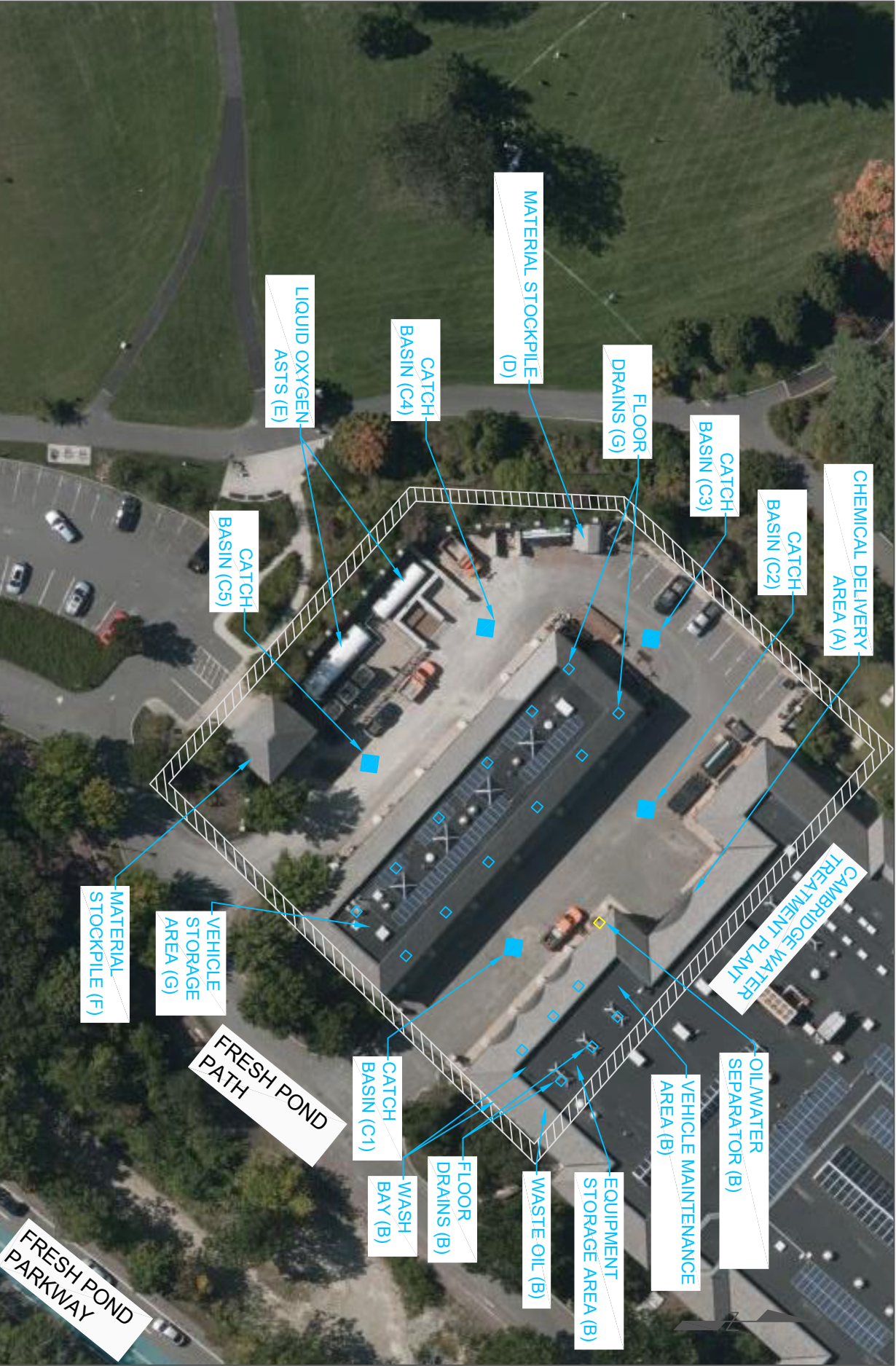
Describe any additional control measures or changes to the SWPPP needed to comply with the permit requirements:

Notes

Use this space for any additional notes or observations from the inspection:

Print inspector name and title:

Signature: _____ **Date:** _____



NOT TO SCALE.

WATER DEPARTMENT
MAINTENANCE GARAGE
250 FRESH POND PARKWAY
CAMBRIDGE, MASSACHUSETTS

APPENDIX D
SITE PLAN

APPENDIX E: COMPLETED INSPECTION RECORDS

Site Inspection Reports

Instructions:

- Include in your records copies of all routine facility inspection reports completed for the facility.
- The sample inspection report is consistent with the requirements in the 2016 Massachusetts MS4 Permit relating to site inspections. **If MassDEP provides you with an inspection report, use that form.**

Using the Sample Site Inspection Report

- This inspection report is designed to be customized according to the specific control measures and activities at your facility. For ease of use, you should take a copy of your site plan and number all of the stormwater control measures and areas of industrial activity that will be inspected. A brief description of the control measures and areas that were inspected should then be listed in the site-specific section of the inspection report.
- You can complete the items in the “General Information” section that will remain constant, such as the facility name and inspector (if you only use one inspector). Print out multiple copies of this customized inspection report to use during your inspections.
- When conducting the inspection, walk the site by following your site map and numbered control measures/areas of industrial activity to be inspected. Also note whether the “Areas of Materials or Activities exposed to stormwater” have been addressed (customize this list according to the conditions at your facility). Note any required corrective actions and the date and responsible person for the correction.

Stormwater Site Inspection Report

General Information			
Facility Name	Cambridge Water Department Facility		
Date of Inspection	August 8, 2019	Start/End Time	10:00 / 10:30
Inspector's Name(s)	Alexis Holmdal, Lucy Turner, Yilka Bekele		
Inspector's Title(s)	AH: Civil Engineer, LT: Engineer-in-Training, YB: Engineer		
Inspector's Contact Information	alexis.holmdal@stantec.com, lucyrose.turner@stantec.com, ybekele@cambridgema.gov		
Inspector's Qualifications			
Weather Information			
Weather at time of this inspection? <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snow <input type="checkbox"/> High Winds <input type="checkbox"/> Other: Temperature: 70-80 F			
Have any previously unidentified discharges of pollutants occurred since the last inspection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe:			
Are there any discharges occurring at the time of inspection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe:			

Areas of Materials or Activities exposed to stormwater

Below are some general areas that should be assessed during routine inspections.

	Area/Activity	Inspected?	Controls Adequate (appropriate, effective, and operating)?	Corrective Action Needed and Notes	Person Responsible for Correction	Corrective Action Taken
1	Chemical Delivery Area	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	No corrective action needed. No leaks were observed.		
2	Material Stockpile (i.e., aggregates)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	To minimize the migration of materials, parking lot should be swept if sediment accumulation is observed near catch basins. (See Photo 1.)	Yilkal Bekele	Coordinated with DPW and Street Sweeping Division to bring the sweepers around during regularly scheduled street cleaning days.
3	Solid Waste Management	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Ensure dumpster lids are closed when not in use.		
4	Material storage areas (outdoors)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Materials stored outdoors (pipes, hydrants, etc) should be covered to prevent rust (See Photo 2.) If material is being used in the future, it should be moved to the storage garage provided there is adequate room.		
5	Storage Garage	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	No corrective action needed. Equipment is stored in garage. Observed puddle on floor in garage;		

	Area/Activity	Inspected?	Controls Adequate (appropriate, effective, and operating)?	Corrective Action Needed and Notes	Person Responsible for Correction	Corrective Action Taken
				(See Photo 3.)		
6	Maintenance Garage	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	No corrective action needed. Work areas are maintained.		
7	Vehicle/Equipment Washing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	No corrective action needed. Vehicles should be washed as specified in the Good Housekeeping Manual due to connectivity of floor drains to oil/water separator.		
8	Waste handling and disposal areas	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Waste oil is collected in Oil Storage Room. Waste oil is collected regularly.		

Non-Compliance

Describe any incidents of non-compliance observed and not described above:

Additional Control Measures

Describe any additional control measures or changes to the SWPPP needed to comply with the permit requirements:

Notes

Use this space for any additional notes or observations from the inspection:

Print inspector name and title:

Signature: _____ **Date:** _____



Photo 1: Runoff from material stockpile areas to adjacent catch basin.



Photo 2: Rust observed under outdoor material storage areas.



Photo 3: Wet floor observed in Storage Garage during site visit.
